

N O T I C E

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GUIDE FOR TIDY USERS

SUMMARY

Tidy is a computer code for use in cleaning up disorganized FORTRAN programs. The old program is re-organized so that statement numbers are added sequentially, and extraneous FORTRAN statements are deleted. This manual contains general instructions for using TIDY on the IBM 360/67 Tymeshare System, and specific instructions for use on the NASA/AMES IBM 360/67 TSS system. TIDY may be readily adapted for use on other computers.

SECTION 1

INTRODUCTION

Often, during the development of a complex program, statement numbering gets out of order and confusing, and it becomes difficult to follow the logic. Also, after many revisions have been made, it is time-consuming for the programmer, even when he is familiar with the program, to locate numbered statements and to generate new numbers. This manual describes how to use a program called TIDY (ref. 1) which edits and renumbers FORTRAN decks which have become difficult to read because of many patches or revisions. TIDY reads the old FORTRAN program, routine by routine, and prepares a new program with the following characteristics:

1. All statement numbers are left justified and increase in consecutive order.
2. Statement numbers are assigned only to statements referenced by other statements.
3. All statement numbers are updated to conform to the new statement number assignments.
4. All format statements are collected from the body of each routine and placed at the end.
5. Only those format and continue statements actually referenced are retained.
6. All excessive blanks are deleted from each statement, while blanks are inserted as necessary to ensure uniformity and to improve readability.
7. All statements in each new routine are labeled in columns 73-80 with a letter-number combination. The letter indicates the routine and the number indicates the position

of the statement within the routine. Thus, 'A 3' indicates the third card of the first routine, while 'C 1' indicates the first card of the third routine.

8. TIDY accepts some, but not all, IBM dialect statements. The programmer who uses TIDY to process programs containing such statements should check the TIDY output carefully.
9. TIDY offers a limited set of FORTRAN diagnostics, but it is possible that certain dialect statements may be thrown out by TIDY without a diagnostic.
10. TIDY accepts and processes FORTRAN statements with up to 19 continuation cards.

General instructions on the use of TIDY are presented in Section 2. Also included in the manual are specific instructions on how to run TIDY in conversational and in batch modes. Control options, which permit modification of many of the default characteristics, are listed in Section 5. A complete terminal session with related output is listed in Appendix A and a listing of the TIDY program can be found in Appendix B. Illustrations used in this manual are specific to the Ames Research Center's IBM 360/67 TSS system.

SECTION 2

GENERAL INFORMATION

- A. Input to TIDY consists of FORTRAN decks as follows:
1. A complete program with subroutines and functions, if any, in the order to be processed.
 2. A single subroutine.
 3. Several subroutines.
 4. More than one program in a single job.
- B. TIDY accepts control cards, identified by an '*' in column 1, permitting the execution of certain options. (See Section 5.)
1. Cards with an '*' in column 1 which do not translate as TIDY control cards are ignored by TIDY and may be used to comment on the program.
 2. To make sure that such comments do not translate, punch '*s' in columns 1 and 2.
- C. Each routine must be complete in itself and must terminate with an END card.
- D. The TIDY control cards '*LAST' and '*STOP' in this order must be placed after the final END statement of the last routine. TIDY uses an input buffering routine which reads one card ahead of the statement being processed, so if both control cards are not used, the system monitor may abort TIDY abnormally because of an input 'End-Of-File'.
- E. In order to assemble an input dataset, the following must be observed:
1. If the routine is a subroutine or function, type in the control statements to be used after the subroutine or function card. Follow the TIDY control cards by the rest of

- the routine. If the *LBE option is used, the label must be punched in columns 73-75 of the subroutine or function card.
2. If it is a main routine, a blank card with a label in columns 73-75 followed by the *LBE control card may be used, or the control cards may be placed at the top of the dataset. (See Figure 2 for detail on *LBE and *EXEM card.)
 3. Users of Ames Research Center TSS system must VSFIL the whole dataset if in conversational mode.

SECTION 3

CONVERSATIONAL MODE

This section applies specifically to Ames Research Center TSS users. Other users can easily make modifications for use on their own systems.

- A. TIDY is stored on IBM 360/67 TSS and has been permitted to all Ames users with read-only access. In order to use TIDY, first type:

SHARE ALICE,FACAVB,LIB.TIDY (this need be done only once)

- B. The tapes (dataset names, SCRATCH.ONE etc., are user's choice) to be defined are:

1. DDEF FT01F001,VS,SCRATCH.ONE
2. DDEF FT02F001,VS,SCRATCH.TWO
3. DDEF FT03F001,VS,TIDY.INPUT
4. DDEF FT06F001,VS,TIDY.OUTPUT
5. DDEF FT08F001,VS,TIDY.PUNCH

- C. Type in:

1. JBLB ALICE
2. LOAD BLOCK
3. CALL MAINTIDY

- D. If printed or punched output is desired after the program has run, type:

1. PRINT TIDY.OUTPUT,PRTSP=EDIT
2. PUNCH TIDY.PUNCH

- E. If several consecutive TIDY jobs are to be run, Ames users should ABEND in between each job. This will guarantee that scratch tapes 1 and 2 will be rewound and all buffers cleared.

SECTION 4

BATCH MODE

It is assumed that the SHARE command as shown in Section 3 has been issued at some previous time.

- A. Do not DDEF FT03FC01 or FT06FC01.
- B. To obtain a punched deck, place the PUNCH command in front of the LOGOFF card.
- C. In order to set up a Batch job properly, see Figures 1 and 2.

SECTION 5

OPTIONS

The following control cards are recognized by TIDY. The default option is given first.

CODE	EXAMPLE	COMMENTS
*LAST	*LAST	TELLS TIDY THIS IS THE END OF INPUT
*STOP	*STOP	TELLS TIDY TO STOP ALL PROCESSING
*SKIP	*SKIP	SKIPS TO AN END CARD
*NEWRO	*NEW ROUTINE	RESETS EVERYTHING TO STARTING VALUES
*COLL *NOCOLL	*COLLECT FORMATS *NO COLLECT	GROUPS FORMAT STATEMENTS AT END OF THE ROUTINE, OR LEAVES THEM IN PLACE
*COMM *NOCOMM	*COMMENTS *NO COMMENTS	TRANSMITS COMMENT STATEMENTS TO OUTPUT OF DELETES THEM.
*LIST *NOLIST	*LIST *NO LIST	REQUESTS/SUPPRESSES A LISTING OF THE ORIGINAL CARDS
*PRIN *NOPRIN	*PRINT *NO PRINT	REQUESTS/SUPPRESSES A LISTING OF BOTH ORIGINAL AND NEW CARDS
*NORREF *REFE	*NO REFERENCES *REFERENCES	SUPPRESSES/REQUESTS A CROSS-REFERENCE TABLE OF OLD AND NEW STATEMENT NUMBERS
*NOEXEM *EXEM	*NO EXEMPT *EXEMPT	EXEMPTS NON-EXECUTABLE STATEMENTS (COMMON, DIMENSION, ETC.) FROM PROCESSING
*NORIGH *RIGH	*NO RIGHT ADJUST *RIGHT ADJUST	STATEMENT NUMBERS START IN COL. 1 STATEMENT NUMBERS END IN COL. 5
*LEFT *NOLEFT	*LEFT ADJUST *NO LEFT ADJUST	SAME AS *NO RIGHT STATEMENT NUMBERS START IN COLUMN 2
*CCLU * *NOCOLU	*COLUMN=7 *COLUMN=12 *NO COLUMN	FORTRAN STARTS IN COLUMN 7 FORTRAN STARTS IN COLUMN 12 FIRST LETTER OF FORTRAN IS NOT MOVED
*NOBASE *BASE	*NO BASE *BASE=100	SAME AS *BASE=0 SETS ZEROth STATEMENT NUMBER
*STAT	*STATEMENT STEP=2	SETS STATEMENT NUMBER INCREMENT
*SERI *NOSERI	*SERIAL *NO SERIAL	REQUESTS/SUPPRESSES SERIAL NAMES AND NUMBERS IN COLUMNS 73-80
*NOLABE	*NO LABEL	TIDY USES THE ALPHABET FOR LABELS

*LARB	*LABEL	TIDY LOOKS IN COL.73-80 OF THE FIRST CARD IN THE ROUTINE FOR THE LABEL
*ROUT	*ROUTINE=26	SETS ROUTINE COUNTER, WHICH MAY AFFECT THE LABEL (SEE *NO LABEL)
*IDST	*ID STEP=5	SETS THE SERIAL NUMBER INCREMENT
*IDIN	*ID INCREMENT=5	SAME AS *ID STEP
*NOWRIT *WRIT	*NO WRITE *WRITE	SUPPRESSFS/REQUESTS USER'S GUIDE AT BEGINNING OF OUTPUT, IBM 360/67

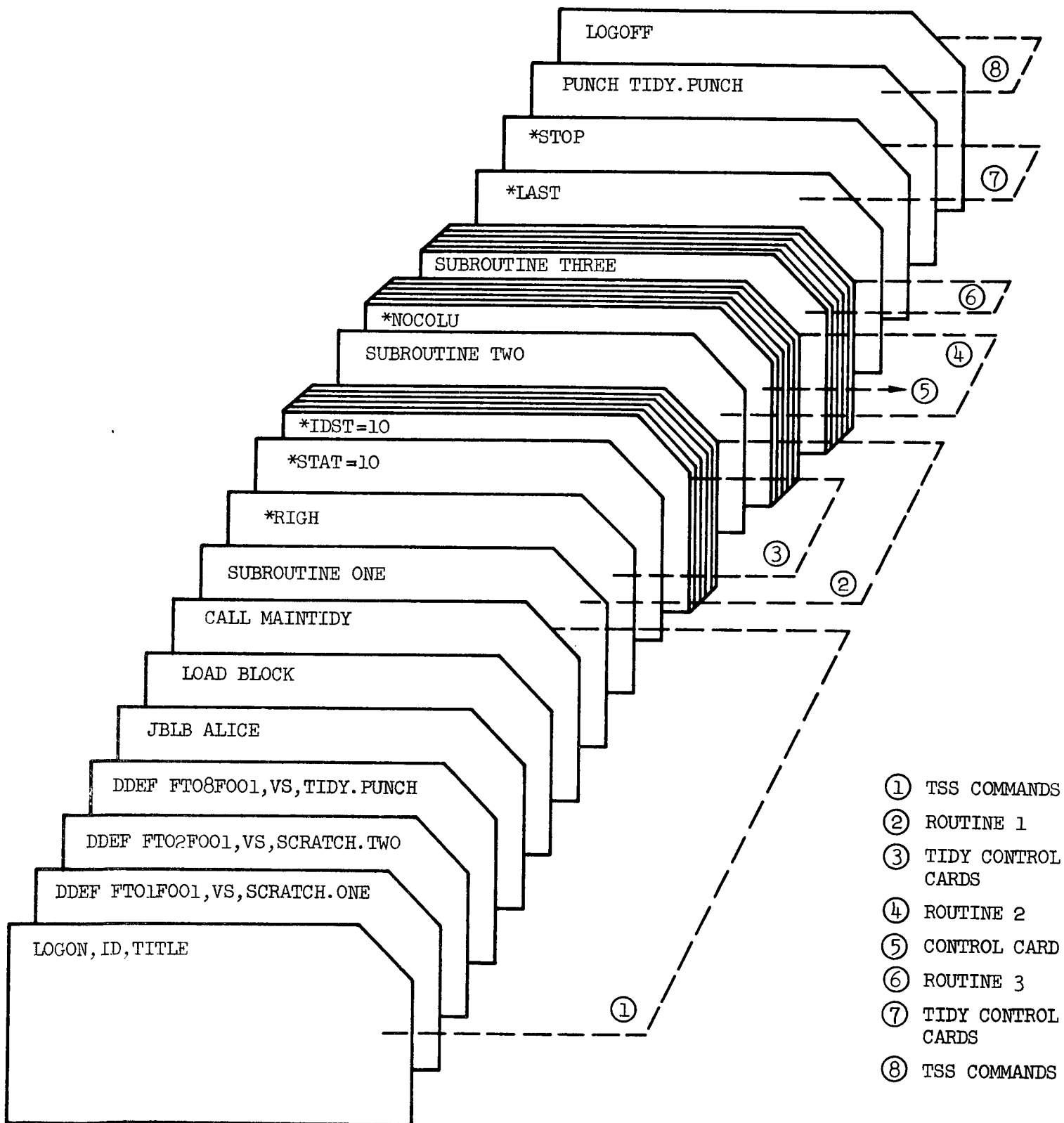


Figure 1.- Batch job.

- ① ROUTINE
- ② TIDY CONTROL CARDS
- ③ LABEL MUST START IN COLUMN 73- MAXIMUM LENGTH IS 3 CHARACTERS

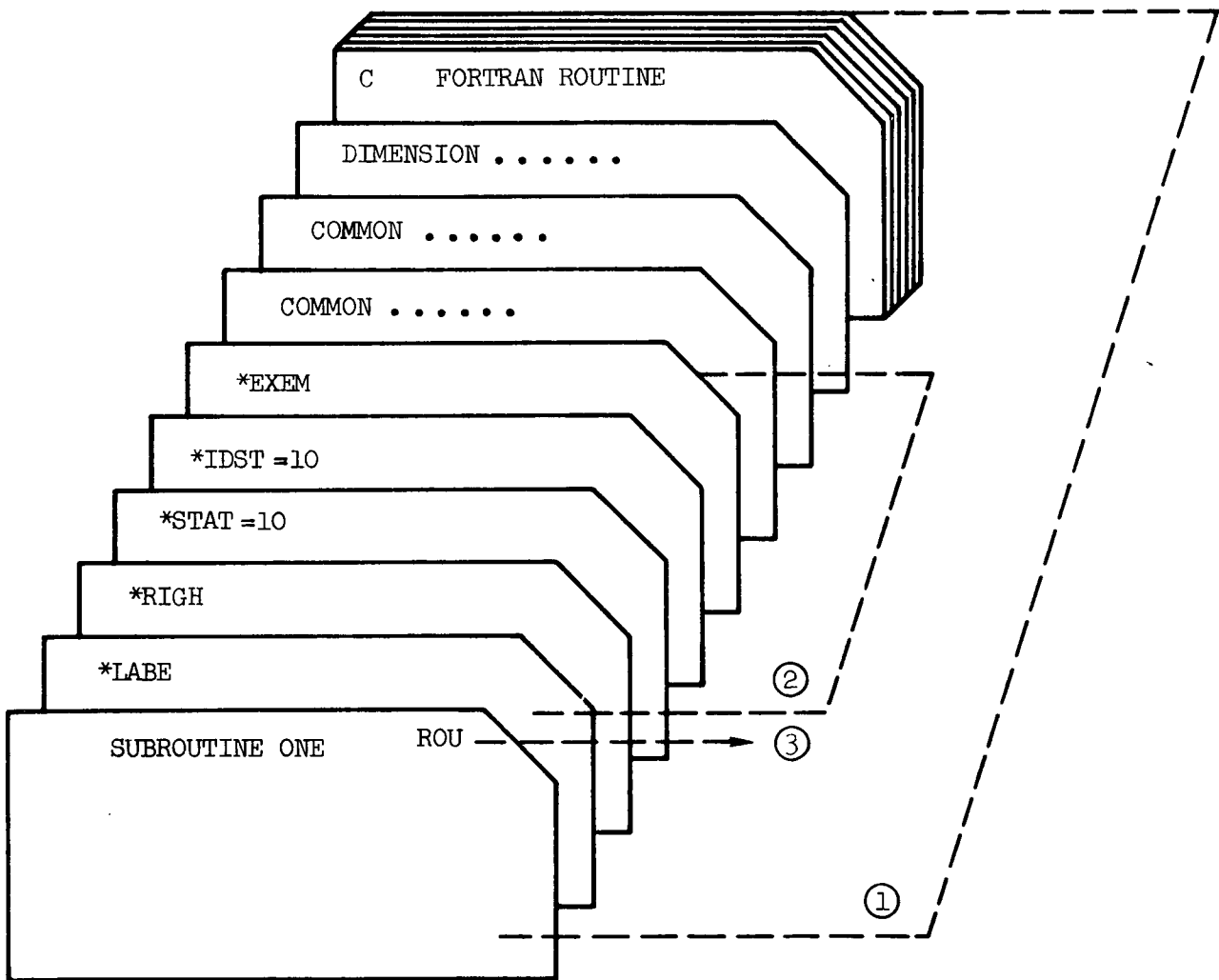


Figure 2.- Use of control cards.

APPENDIX A

TERMINAL SESSION, AMES RESEARCH CENTER ISS

The following example shows a TIDY program being executed from a terminal in conversational mode. Assume that the SHARE command (Section 3) has already been issued. The subroutine below is to be TIDIED by incrementing statement and serial numbers by 10, and right-adjusting statement numbers. A cross reference table of old and new numbers will be listed. If a listing of the options, as shown in Section 5, is desired at the beginning of the TIDY output, the option *WRIT should be included. The original routine is:

```

SUBROUTINE TRTAL (AP, BP, CP, M, N, L, XA, XB, XC, IROW, JCOL)
DIMENSION AP (100), BP (100), CP (100)
DIMENSION XA (3, 3), XB (3), XC (3)
C
C THE FOLLOWING ROUTINES ARE EXAMPLES OF VECTOR-VECTOR
C MULTIPLICATION AND OF MATRIX-VECTOR MULTIPLICATION.
C
50  FORMAT (5X, 8E15.6)
    DO 10 I=1, M
      DO 1 J=1, I
        JJ=M*J-M+I
        CP (JJ)=0.
      DO 112 K=1, N
        KI=M*K-M+I
        KK=N*J-N+K
        CP (JJ)=CP (JJ)+AP (KI)*BP (KK)
112  CONTINUE
    WRITE (6, 50) CP (JJ)
1   CONTINUE
10  CONTINUE
    DO 4 L=1, IROW
3   FORMAT (5X, 8E13.4)
    XC (L)=0.
    DO 2 M=1, JCOL
      IF (M.LT.I) AIR=XA (M, L)
      AIR=XA (L, M)
      YC (L)=XC (L)+AIR*XB (M)
2   CONTINUE
    WRITE (6, 3) XC (L)
4   CONTINUE
    RETURN
    END

```


user: (data definitions for datasets to
be used; dsnames are user's choice)
ddef ft01f001,vs,scratch.one
ddef ft02f001,vs,scratch.two
ddef ft03f001,vs,tidy.input
ddef ft06f001,vs,tidy.output
ddef ft08f001,vs,tidy.punch

user: jblb alice (Moves alice to the logical top
of user's job library list)

SYS: DDNAME=JBLB0001

user: load block (Block data must be loaded first)
call maintidy (Initiates program execution; TIDY
requires approximately 50 cpu
seconds per 1000 cards processed)

SYS: TERMINATED: STOP

user: print tidy.output,prtsp=edit
(Output will be printed; see
Figure 3)

SYS: PRINT BSN=1234, 200 LINES

user: punch tidy.punch (Since this is a vsfile, do not
list any options; a deck is
punched only if this command
is issued)

SYS: PUNCH BSN=1235

user: logoff

Note: It is a good practice to check carefully all output from TIDY
before issuing the PUNCH command to be sure that no FORTRAN
errors or dialect statements have been detected and thrown out.


```

0      SUBROUTINE TRIAL (AP,BP,CP,M,N,L,XA,XB,XC,IROW,JCOL)
1      *RIGH
1      *STAT=10
1      *IDST=10
1      *REFE
1          DIMENSION AP(100),BP(100),CP(100)
2          DIMENSION XA(3,3),XB(3),XC(3)
3      C
4      C THE FOLLOWING ROUTINES ARE EXAMPLES OF VECTOR-VECTOR
5      C MULTIPLICATION AND OF MATRIX-VECTOR MULTIPLICATION.
6      C
7      50  FORMAT(5X,8E15.6)
8          DO 10 I=1,M
9              DO 1 J=1,L
10             JJ=M*J-M+I
11             CP(JJ)=0.
12             DO 112 K=1,N
13                 KI=M*K-M+I
14                 KK=N*J-N+K
15                 CP(JJ)=CP(JJ)+AP(KI)*BP(KK)
16 112     CONTINUE
17         WRITE(6,50) CP(JJ)
18 1     CONTINUE
19 10    CONTINUE
20         DO 4 L=1,IROW
21         3  FORMAT(5X,8E13.4)
22         XC(L)=0.
23         DO 2 M=1,JCOL
24             IF(M.LT.L)AIR=XA(M,L)
25             AIR=XA(L,M)
26             XC(L)=XC(L)+AIR*XB(M)
27         2  CONTINUE
28             WRITE(6,3)XC(L)
29 4     CONTINUE
30     RETURN
31     END

```

Figure 3.- Output from Tidy

* T I D Y *

ROUTINE 1 PASS 1 PAGE 2
SUBROUTINE TRIAL(AP,BP,CP,M,N,L,XA,XB,XC,IROW,JCOL)

PAGE 2

STATEMENT NUMBER DIRECTORY

NEW	OLD	LOC	OLD	LOC	NEW
10 =	112,(	17).	1,(	19) =	20.
20 =	1,(	19).	2,(	28) =	40.
30 =	10,(	20).	3,(	0) =	70.
40 =	2,(	28).	4,(	30) =	50.
50 =	4,(	30).	10,(	20) =	30.
60 =	50,(	0).	50,(	0) =	60.
70 =	3,(	0).	112,(	17) =	10.

OLD STATEMENT NUMBERS NOT APPEARING IN THIS DIRECTORY
WERE NOT REFERENCED AND HENCE ARE DELETED.

Figure 3.- Output from Tidy (cont.)

* T I D Y *	ROUTINE 1 PASS 2 PAGE 1	PAGE 3
	SUBROUTINE TRIAL (AP,BP,CP,M,N,L,XA,XB,XC,IROW,JCOL)	
	SUBROUTINE TRIAL (AP,BP,CP,M,N,L,XA,XB,XC,IROW,JCOL)	A 10
	DIMENSION AP(100), BP(100), CP(100)	A 20
	DIMENSION XA(3,3), XB(3), XC(3)	A 30
C		A 40
C	THE FOLLOWING ROUTINES ARE EXAMPLES OF VECTOR-VECTOR	A 50
C	MULTIPLICATION AND OF MATRIX-VECTOR MULTIPLICATION.	A 60
C		A 70
	DO 30 I=1,M	A 80
	DO 20 J=1,L	A 90
	JJ=M*J-M+I	A 100
	CP(JJ)=0.	A 110
	DO 10 K=1,N	A 120
	KI=M*K-M+I	A 130
	KK=N*J-N+K	A 140
	CP(JJ)=CP(JJ)+AP(KI)*BP(KK)	A 150
10	CONTINUE	A 160
	WRITE (6,60) CP(JJ)	A 170
20	CONTINUE	A 180
30	CONTINUE	A 190
	DO 50 L=1,IROW	A 200
	XC(L)=0.	A 210
	DO 40 M=1,JCOL	A 220
	IF (M.LT.L) AIR=XA(M,L)	A 230
	AIR=XA(L,M)	A 240
	XC(L)=XC(L)+AIR*XB(M)	A 250
40	CONTINUE	A 260
	WRITE (6,70) XC(L)	A 270
50	CONTINUE	A 280
	RETURN	A 290
C		A 300
	60 FORMAT (5X,8E15.6)	A 310
	70 FORMAT (5X,8E13.4)	A 320
	END	A 330-

Figure 3.- Output from Tidy (cont.)

* T I D Y *

ROUTINE 2 PASS 1 PAGE 1
*LAST

PAGE 4

0 *LAST

NO DIAGNOSTIC MESSAGES WERE GENERATED DURING THIS TIDY RUN.

33 CARDS WERE PUNCHED.

TIDY MK-240870.

APPENDIX B

PROGRAM LISTING

```

-----
* * *   T I D Y   * * *
*
* A FORTRAN PROGRAM TO RENUMBER AND OTHERWISE CLEAN UP
* OLD AND TINED FORTRAN SOURCE PROGRAMS.
*
* TIDY ACCEPTS ASA FORTRAN WITH 19 CONTINUATION CARDS
* AS WELL AS SOME IBM AND CDC DIALECT FORTRAN STATEMENTS
*
* THIS PROGRAM HAS BEEN REVISED FOR IBM 360/67 BY ALICE
* V BARLOW, NASA AMES, SUMMER 1972
*
* IN ADDITION TO RENUMBERING,
* TIDY PROVIDES A LIMITED SET OF FORTRAN
* DIAGNOSTICS.
*
* A S A   F O R T R A N   (COMM. ACM OCTOBER 1964.)
-----

```

```

*****
* PROGRAM
* AND SUBROUTINES BY
* HARRY M MURPHY
* AIR FORCE WEAPONS LABORATORY
* KIRTLAND AIR FORCE BASE
* NEW MEXICO
* 1 9 6 6
*****

```

```

COMMON
1 JINT(1600) ,JOB(80) ,KBUFF(80)
2 ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)

COMMON /LARGE/ NWORDS ,IOUT(1326)

COMMON /MISC/
1 ICOL ,IFIR ,IPASS ,ISTAR
2 JCOL ,JMAX ,KILI(4) ,KOL73(3)
3 L772 ,LAST ,LCPY ,LDOS(10)
4 LFIR ,LQUAL ,MEOF ,MILDO
5 MLGC ,MP2 ,MTRAN ,NBLC
6 NCD ,NDEF ,NDOS ,NINS
7 NPAR ,NPUN ,NREC ,NREF
8 NRT1 ,NRT2 ,NTEMP(5) ,NXEQ
9 NTRAN ,KEND(3) ,MPUN ,MPRIN
EQUIVALENCE (KILI(1),KCLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)

COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)

COMMON /CONIDY/ NKTRL,KTRL(4,25)

REAL*8 MSG

COMMON /DIOMSG/ MSG(10,30),NMSG

```

A 1
A 2
A 3
A 4
A 5
A 6
A 7
A 8
A 9
A 10
A 11
A 12
A 13
A 14
A 15
A 16
A 17
A 18
A 19
A 20
A 21
A 22
A 23
A 24
A 25
A 26
A 27
A 28
A 29
A 30
A 31
A 32
A 33
A 34
A 35
A 36
A 37
A 38
A 39
A 40
A 41
A 42
A 43
A 44
A 45
A 46
A 47
A 48
A 49
A 50
A 51
A 52
A 53
A 54
A 55
A 56
A 57
A 58
A 59
A 60
A 61

```

C
COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE
C
COMMON /KSTCOM/ NKST,KST(13,65)
C
COMMON /CHOICE/
1 KB15 ,KPUN ,MCOL ,MCOM
2 ,MEX ,KD79 ,MLBL ,MSTOP
3 ,MLIST ,NROUT ,MREF ,MSKP
4 ,KD15 ,MSER ,MRIT ,JUST
5 ,KPRIN ,NOPT
C
*****
* T I D Y   M A I N   P R O G R A M   *
*****
C
CALL READER
10 CALL PASS1
IF (MSTOP) 60,20,20
20 CALL EDIT
IF (MP2) 30,10,30
30 IF (MREF) 40,50,40
40 CALL RDIR
50 CALL PASS2
IF (MSTOP) 60,10,60
60 CALL IOSYS1 (0,0,0)
CALL IOSYS2 (0,0,0)
IF (NMSG) 80,80,70
70 WRITE (6,100) NMSG
GO TO 90
80 WRITE (6,110)
90 WRITE (6,120) NPUN
STOP
C
100 FORMAT (16H0W A R N I N G ,I5,58H DIAGNOSTIC MESSAGES HAVE BEEN G
GENERATED IN THIS TIDY RUN.)
110 FORMAT (60H0NO DIAGNOSTIC MESSAGES WERE GENERATED DURING THIS TIDY
1 RUN.)
120 FORMAT (1H0,I5,20H CARDS WERE PUNCHED./16H0TIDY MK=240870./1H1)
END
SUBROUTINE READER
THIS ROUTINE READS CARDS ONE BY ONE FROM TAPE2, UNTIL IT FINDS A
NON-BLANK ONE, THEN RETURNS. IF IT FINDS AN END-OF-FILE, OR IF
MODE IS NEGATIVE, IT GENERATES A *STOP CARD.
COMMON
1 JINT(1600) ,JOB(80) ,KBUFF(80)
2 ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
C
COMMON /LARGE/ NWORDS ,IOUT(1326)
C
COMMON /MISC/
1 ICOL ,IFIR ,IPASS ,ISTAR
2 JCOL ,JMAX ,KILI(4) ,KOL73(3)
3 L772 ,LAST ,LCPY ,LDOS(10)
4 LFIR ,LQUAL ,MEOF ,MILDO
5 MLGC ,MP2 ,MTRAN ,NBLC
6 NCD ,NDEF ,NDOS ,NINS
7 NPAR ,NPUN ,NREC ,NREF
8 NRT1 ,NRT2 ,NTEMP(5) ,NXEQ

```

```

9      ,NTRAN      ,KEND(3)      ,MPUN      ,MPRIN      H 22
EQUIVALENCE (KILI(1),KCLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),JMAX)      H 23
C      COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12) H 24
C      COMMON /CONTDY/ NKTRL,KTRL(4,25)          H 25
C      COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM    H 26
C      COMMON /INIT/ LINE,MPAGE,NPAGE,KODE      H 27
C      COMMON /KSTCOM/ NKST,KST(13,65)          H 28
C      COMMON /CHOICE/
1      ,KB15      ,KPUN      ,MCOL      ,MCOM      H 29
2      ,MEX      ,KD79      ,MLHL      ,MSTOP     H 30
3      ,MLIST     ,NROUT     ,MREF      ,MSKP      H 31
4      ,KD15      ,MSEH      ,MRIT      ,JUST      H 32
5      ,KPRIN     ,NOPT      ,          ,          H 33
C      IF (KODE) 40,10,10
10     READ(3,60,END=40)KBUFF
IF (KBUFF(7)-KBL) 50,20,50
20     DO 30 I=1,72
IF (KRUFF(I)-KBL) 50,30,50
30     CONTINUE
WRITE (6,70)
CALL PAGE (1)
GO TO 10
40     KODE=-1
MSTOP=+1
KRUFF(1)=KSPK(8)
KRUFF(2)=KABC(19)
KBUFF(3)=KARC(20)
KRUFF(4)=KABC(15)
KRUFF(5)=KABC(16)
50     RETURN
60     FORMAT (80A1)
70     FORMAT (35X,2JM( B L A N K C A R D ))
END
SUBROUTINE PASS1
C      THIS ROUTINE COLLECTS STATEMENT NUMBERS, MAKES DIAGNOSTIC COMMENTS
C      AND SETS UP THE FORTRAN STATEMENTS IN A FORM SUITABLE FOR PASS2.
C      COMMON
1      ,JINT(1600) ,JOB(80) ,KBUFF(80)
2      ,LDEF(3000) ,LREF(1000)
C      DIMENSION KIM(80,20)
EQUIVALENCE (JINT,KIM)
C      COMMON /LARGE/ NWORDS,IOUT(1326)
COMMON /NEW/ NOUT(1326)
REAL*8 NOUT
C      COMMON /MISC/
1      ,ICOL      ,IFIR      ,IPASS      ,ISTAR
2      ,JCOL      ,JMAX      ,KIL1(4)   ,KOL73(3)
3      ,L772      ,LAST      ,LCPY      ,LDOS(10)
4      ,LFIR      ,LQUAL     ,MEOF      ,MILDO
5      ,MLGC      ,MP2       ,MTRAN     ,NBLC

```

```

6      ,NCD      ,NDEF      ,NDOS      ,NINS      C 22
7      ,NPAR     ,NPUN      ,NREC      ,NREF      C 23
8      ,NRT1     ,NRT2     ,NTEMP(5)   ,NXEQ     C 24
9      ,NTRAN     ,KEND(3)   ,MPUN      ,MPRIN     C 25
EQUIVALENCE (KILI(1),KCLASS) , (KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),JMAX)      C 26
C      COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12) C 27
C      COMMON /CONTDY/ NKTRL,KTRL(4,25)          C 28
C      COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM    C 29
C      COMMON /INIT/ LINE,MPAGE,NPAGE,KODE      C 30
C      COMMON /KSTCOM/ NKST,KST(13,65)          C 31
C      COMMON /CHOICE/
1      ,KB15      ,KPUN      ,MCOL      ,MCOM      C 32
2      ,MEX      ,KD79      ,MLBL      ,MSTOP     C 33
3      ,MLIST     ,NROUT     ,MREF      ,MSKP      C 34
4      ,KD15      ,MSER      ,MRIT      ,JUST      C 35
5      ,KPRIN     ,NOPT      ,          ,          C 36
C      A      B      C      D      E      F      G      H      I      J      K      L      M      C 37
C      1      2      3      4      5      6      7      8      9      10     11     12     13     C 38
C      N      O      P      Q      R      S      T      U      V      W      X      Y      Z      C 39
C      14     15     16     17     18     19     20     21     22     23     24     25     26     C 40
C      =      ,      (      /      )      +      -      *      ,      $      -      NONE     C 41
C      1      2      3      4      5      6      7      8      9      10     11     12     C 42
C      SET UP INITIAL CONDITIONS.
C      REWIND TAPE FILES 1 AND 2.
C      10     CALL IOSYS1 (0,0,0)
CALL IOSYS2 (0,0,0)
DO 20 I=1,10
20     LDOS(I)=0
IMAX=1326
IPASS=1
KODE=0
MP2=1
NRLC=2
MPUN=KPUN
MPRIN=KPRIN
NROUT=NROUT+1
NRT1=0
NRT2=0
MILNO=0
MLGC=0
MSKP=0
MPAGE=0
MSTOP=0
NTRAN=0
NDEF=0
NDOS=0
NFORI=0
NREC=0

```

NREF=0	C	85	280 CONTINUE	C	148
NTRAN=0	C	86		C	149
NXEQ=0	C	87		C	150
GO TO 50	C	88	BLANK COMMENT. TEST IF TWO PREVIOUS CARDS WERE BLANK	C	151
C	C	89		C	152
C	C	90	NBLC=NBLC+1	C	153
30 JG00F=9	C	91	IF (NBLC=3) 290,50,50	C	154
	C	92	290 JINT(1)=KABC(3)	C	155
40 CALL DIAGNO WRITE DIAGNOSTIC	C	93	JMAX=7	C	156
40 CALL DIAGNO (JG00F)	C	94	300 KLASS=1	C	157
	C	95	310 JTYPE=0	C	158
50 CALL SKARD	C	96	L15=0	C	159
NREC=NREC+1	C	97		C	160
DO 60 I=1,IMAX	C	98	WRITE STATEMENT IMAGE ON TAPE 1 FOR PASS 2.	C	161
60 IOUT(I)=KBL	C	99		C	162
C	C	100	IMAX=JMAX	C	163
C	C	101	CALL IOSYS1 (2,KILI,4)	C	164
LOOK FOR * IN COLUMN 1	C	102	CALL IOSYS1 (2,JINT,IMAX)	C	165
	C	103	NRT1=NRT1+1	C	166
IF (JINT(1)=KSPK(8)) 140,70,140	C	104	GO TO 50	C	167
70 CALL CONTRL	C	105		C	168
IF (NOPT.EQ.1) WRITE (6,2850) (NOUT(I),I=1,NWORDS)	C	106	NON-BLANK COMMENT.	C	169
NOPT=0	C	107		C	170
IF (ISTAR) 80,120,130	C	108	320 NBLC=0	C	171
	C	109	IF (JMAX=73) 300,330,330	C	172
CONTROL CARD FOUND AND EXECUTED.	C	110	330 JMAX=72	C	173
80 IF (MSTOP) 90,100,90	C	111	GO TO 300	C	174
90 RETURN	C	112		C	175
100 IF (MSKP) 110,50,110	C	113	NON-BLANK IN STATEMENT FIELD.	C	176
110 MP2=0	C	114		C	177
CALL NOPRO (0)	C	115	340 ICOL=6	C	178
GO TO 10	C	116	DO 350 I=JCOL,JMAX	C	179
CONTROL CARD FOR DELAYED EXECUTION. SAVE FOR PASS 2.	C	117	ICOL=ICOL+1	C	180
120 KLASS=0	C	118	IOUT(ICOL)=JINT(1)	C	181
GO TO 310	C	119	IOUT(1)=KABC(3)	C	182
	C	120	IF (ICOL=73) 370,360,360	C	183
* IN COL 1. NOT A CONTROL CARD. PUT OUT LITERALLY	C	121	360 ICOL=72	C	184
UNLESS * IN COL 2. ALSO.	C	122	370 IMAX=ICOL	C	185
130 IF (JINT(2)=KSPK(8)) 300,50,300	C	123	KLASS=1	C	186
	C	124	JTYPE=0	C	187
*STOP COMMAND EXIT.	C	125	L15=0	C	188
	C	126	CALL IOSYS1 (2,KILI,4)	C	189
NO * IN COLUMN 1. LOOK FOR C, D, I, F, ., OR %.	C	127	CALL IOSYS1 (2,IOUT,IMAX)	C	190
	C	128	NRT1=NRT1+1	C	191
140 IF (JINT(1)=KBL) 150,380,150	C	129	GO TO 50	C	192
150 IF (JINT(1)=KABC(3)) 160,220,160	C	130		C	193
160 IF (JINT(1)=KABC(4)) 170,210,170	C	131	*****	C	194
170 IF (JINT(1)=KABC(9)) 180,210,180	C	132	* START PROCESSING OF FORTRAN CARDS *	C	195
180 IF (JINT(1)=KABC(6)) 190,210,190	C	133	* * * * *	C	196
190 IF (JINT(1)=KSPK(10)) 200,320,200	C	134		C	197
200 IF (JINT(1)=KSPK(9)) 380,320,380	C	135		C	198
210 CALL DIAGNO (8)	C	136		C	199
GO TO 50	C	137	380 IF (JMAX=8) 40,390,390	C	200
	C	138	390 NFORT=NFORT+1	C	201
COMMENT CARD. DO WE SAVE THEM...	C	139	CHECK AND CHANGE HOLLERITH FIELDS	C	202
220 IF (MCOM) 270,50,230	C	140	CALL HOLSCN	C	203
	C	141	CLEAR FLAGS	C	204
CHECK COL 2-6. DELETE *. SKIP ON ANYTHING ELSE.	C	142	IF (MLGC) 400,410,400	C	205
230 DO 260 JCOL=2,6	C	143	MTRAN=0	C	206
IF (JINT(JCOL)=KBL) 240,260,240	C	144	MLGC=0	C	207
240 IF (JINT(JCOL)=KSPK(8)) 340,250,340	C	145	410 NTRAN=MTRAN	C	208
250 JINT(JCOL)=KBL	C	146	MTRAN=0	C	209
260 CONTINUE	C	147	MEOF=-1	C	210
	C		JG00F=1		
LOOK FOR BLANK COMMENT					
270 DO 280 JCOL=2,JMAX					
IF (JINT(JCOL)=KBL) 320,280,320					

C	L15=0	CLEAR STATEMENT AND REFERENCE NUMBERS	C 211	DO 660 J=JJ,JMAX	C 274
	L772=0		C 212	JNT=JINT(J)	C 275
C		CLEAR BLANK COMMENT COUNTER	C 213	DO 620 I=1,11	C 276
	NBCOLD=NBLC		C 214	IF (JNT-KSPK(I)) 620,630,620	C 277
	NBLC=0		C 215	620 CONTINUE	C 278
C		SET POSITION COUNTERS.	C 216	GO TO 660	C 279
	JCOL=7		C 217	630 IF (I=2) 670,640,670	C 280
	ICOL=JUST-1		C 218	640 IF (NCOMA-1) 650,650,670	C 281
	IF (JUST) 450,420,450		C 219	650 NCOMA=NCOMA+1	C 282
420	ICOL=6		C 220	660 CONTINUE	C 283
430	IF (JINT(JCOL)-KBL) 450,440,450		C 221		C 284
440	JCOL=JCOL+1		C 222		C 285
	ICOL=ICOL+1		C 223		C 286
	GO TO 430		C 224		C 287
C		ANALYSIS OF LOGICAL IF RE-ENTERS HERE.	C 225		C 288
450	CONTINUE		C 226		C 289
C		SELECT NEXT COURSE ON BASIS OF FIRST SPECIAL CH.	C 227		C 290
C		" = , (/) * - * . \$ "	C 228		C 291
C		GO TO (560,730,460,730,30,30,30,30,30,30,30,730),IFIR	C 229		C 292
C		FIRST IS (. LOOK FOR)	C 230		C 293
460	NF=LFIR		C 231		C 294
	NPAR=1		C 232		C 295
	JGOOF=2		C 233		C 296
470	NF=N*1		C 234		C 297
	IF (NF-JMAX) 480,480,40		C 235		C 298
480	JT=JINT(NF)		C 236		C 299
	IF (JT-KSPK(5)) 490,510,490		C 237		C 300
C		MAYBE NESTED. LOOK FOR (	C 238		C 301
490	IF (JT-KSPK(3)) 470,500,470		C 239		C 302
500	NPAR=NPAR+1		C 240		C 303
	GO TO 470		C 241		C 304
510	NPAR=NPAR-1		C 242		C 305
	IF (NPAR) 470,520,470		C 243		C 306
C		THIS IS THE END OF THE FIRST STACK OF PARENS.	C 244		C 307
		SKIP BLANKS.	C 245		C 308
520	NF=N*1		C 246		C 309
	IF (NF-JMAX) 530,730,530		C 247		C 310
530	IF (JINT(NF)-KBL) 540,520,540		C 248		C 311
C		IF NEXT CHARACTER IS NOT = PROCESS AS FORTRAN STATEME	C 249		C 312
540	IF (JINT(NF)-KSPK(1)) 730,550,730		C 250		C 313
C		OTHERWISE, PROCESS AS ARITHMETIC REPLACEMENT.	C 251		C 314
550	LQUAL=N*1		C 252		C 315
	GO TO 670		C 253		C 316
C		FIRST SPECIAL CH. IS =.	C 254		C 317
560	LQUAL=LFIR		C 255		C 318
C		IS IT A DO STATEMENT. IF NOT, GO TO ARITHMETIC PROC.	C 256		C 319
C		LOOK FOR -D- -O-	C 257		C 320
	I=KABC(4)		C 258		C 321
	DO 600 J=7,JMAX		C 259		C 322
	IF (JINT(J)-KBL) 570,600,570		C 260		C 323
570	IF (JINT(J)-1) 670,580,670		C 261		C 324
580	IF (I=KABC(15)) 590,610,590		C 262		C 325
590	I=KABC(15)		C 263		C 326
600	CONTINUE		C 264		C 327
	GO TO 670		C 265		C 328
C		FOUND -D- -O- NOW LOOK FOR COMMAS. ALLOW EXACTLY 1	C 266		C 329
C		OR 2 COMMAS, 1 EQUALS, AND NO OTHER SPECIAL CH.	C 267		C 330
610	NCOMA=0		C 268		C 331
	JJ=LQUAL+1		C 269		C 332
			C 270		C 333
			C 271		C 334
			C 272		C 335
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C			C 337	950 CONTINUE	C 400
C		THIS IS A FORTRAN STATEMENT FOLLOWING A LOGICAL IF.	C 338	960 CALL DLIST (MERR)	C 401
		CHECK THE KCLASS.	C 339	IF (MERR) 50,970,50	C 402
	790 IF (KCLASS=6) 40,910,800		C 340	970 IMAX=ICOL	C 403
	800 IF (KCLASS=7) 40,910,40		C 341		C 404
C			C 342	C WRITE STATEMENT IMAGE ON TAPE1 FOR PASS 2.	C 405
C		THIS IS A FORTRAN STATEMENT.	C 343	980 CALL .IOSYS1 (2,KILI,4)	C 406
C		SET IMAX IN CASE THIS STATEMENT IS PUT OUT DIRECTLY.	C 344	CALL IOSYS1 (2,IOUT,IMAX)	C 407
	810 IMAX=JMAX		C 345	NRT1=NRT1+1	C 408
C		CHECK FOR EXEMPT STATEMENT.	C 346	GO TO 50	C 409
	IF (KCLASS=3) 850,820,850		C 347		C 410
	820 DO 830 J=1,6		C 348	C ***** JTYPE = 1	C 411
	830 JINT(J)=KBL		C 349	ASCENT,MACHINE,IDENT.	C 412
	IF (MEX) 840,910,840		C 350	(MUST BE THE FIRST CARD OF THIS PASS.)	C 413
C		THIS IS A NON-EXECUTABLE (KCLASS 3.) FORTRAN STATEMENT	C 351		C 414
C		AND THE EXEMPT FLAG IS SET. SO PUT IT OUT DIRECTLY.	C 352	990 IF (NFORT=1) 1000,1010,1000	C 415
	840 CALL IOSYS1 (2,KILI,4)		C 353	1000 CALL DIAGNO (1*)	C 416
	CALL IOSYS1 (2,JINT,JMAX)		C 354	1010 CALL DIAGNO (26)	C 417
	NRT1=NRT1+1		C 355	CALL NOPRO (0)	C 418
	GO TO 50		C 356	CALL HEADER	C 419
C			C 357	RETURN	C 420
C		GET STATEMENT NUMBER UNLESS FOLLOWING LOGICAL IF.	C 358		C 421
	850 IF (MLGC) 910,860,910		C 359	C ***** JTYPE = 2	C 422
	860 DO 900 I=1,5		C 360	ASSIGN	C 423
	IF (JINT(I)=KBL) 870,900,870		C 361		C 424
	870 DO 880 J=1,10		C 362	1020 CALL COPY (6)	C 425
	IF (JINT(I)=KDIG(J)) 880,890,880		C 363	CALL RSTAT	C 426
	880 CONTINUE		C 364	CALL RLST	C 427
	GO TO 910		C 365	IOUT(ICOL+2)=KLR2	C 428
	890 L15=L15*10+J-1		C 366	IOUT(ICOL+3)=L772	C 429
	900 CONTINUE		C 367	ICOL=ICOL+4	C 430
C			C 368	CALL COPY (2)	C 431
C		GO TO INDIVIDUAL STATEMENT PROCESSING BY JTYPE.	C 369	ICOL=ICOL+1	C 432
C			C 370	IF (MEOF) 940,40,40	C 433
C			C 371		C 434
	910 GO TO (990,1020,1030,1040,1060,1080,1120,1180,1230,1270,1320,1390,		C 372	C ***** JTYPE = 3	C 435
	11400,1410,1570,1590,1770,1790,1800,1890,1910,1920,1950,2010,2130,2		C 373	BACKSPACE, COMPLEX, EXTERNAL, INTEGER, LOGICAL, PAUSE.	C 436
	2170,2180,2190,2220,2230,2240,2380,2390,2470,2480,2520,2650,2680,27		C 374		C 437
	370,2780,2790,2800,2830,2510,2640),JTYPE		C 375	1030 CALL COPY (NINS)	C 438
			C 376	GO TO 920	C 439
C		=====	C 377		C 440
C		*	C 378	C ***** JTYPE = 4	C 441
C		* AT THIS POINT, COMMENTS AND ARITHMETIC STATEMENTS HAVE BEEN	C 379	BLOCK DATA	C 442
C		* PROCESSED. THE STATEMENTS HAVE BEEN CLASSIFIED AS ITYPE AND	C 380		C 443
C		* KCLASS. THE LAST SYMBOL USED IN SCANNING THE FORTRAN STATE-	C 381	1040 IF (NFORT=1) 40,1050,40	C 444
C		* MENT IS KST(NINS,ITYPE), AND WAS FOUND AT JINT(LAST), THE	C 382	1050 CALL COPY (5)	C 445
C		* FIRST SPECIAL CHARACTER, IF ANY, IS KSPK(IFIR), LOCATED AT	C 383	ICOL=ICOL+1	C 446
C		* JINT(LFIR). IF A STATEMENT	C 384	CALL COPY (4)	C 447
C		* NUMBER IS PERMITTED, IT IS IN L15. IF NOT, L15=0.	C 385	IMAX=ICOL	C 448
C		* JCOL IS ON THE CURRENT CHARACTER IN THE INPUT STRING (THE	C 386	GO TO 980	C 449
C		* FIRST, UNLESS FOLLOWING A LOGICAL IF). ICOL IS ON THE MOST	C 387		C 450
C		* RECENT CHARACTER TO BE PUT INTO THE OUTPUT STRING (E.G. 6.)	C 388	C ***** JTYPE = 5	C 451
C		*	C 389	BUFFER IN (I,P) (A,B) /// BUFFER OUT (I,P) (A,B)	C 452
C		=====	C 390		C 453
C			C 391	1060 CALL COPY (6)	C 454
C		ILLEGAL JTYPE	C 392	ICOL=ICOL+1	C 455
C		WRITE (6,2970) JTYPE	C 393		C 456
C		STOP	C 394	C NINS IS 9 FOR BUFFERIN, 10 FOR BUFFEROUT	C 457
C			C 395	CALL COPY (NINS-7)	C 458
C		COPY REST OF CARD.	C 396	ICOL=ICOL+1	C 459
	920 ICOL=ICOL+1		C 397	CALL COPY (-1)	C 460
	930 CONTINUE		C 398	ICOL=ICOL+1	C 461
	940 CALL COPY (0)		C 399	CALL COPY (-1)	C 462
	IF (KCLASS=4) 970,960,960			IF (MEOF) 1070,40,40	
C		DLIST HANDLES THE STATEMENT NUMBER.		1070 IF (JCOL=JMAX) 40,40,960	

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C
C          ***** JTYPE = 6
C      CALL      (FUNCTION,SUBROUTINE)
C
1080 JG00F=10
      CALL COPY (4)
      ICOL=ICOL+1
      IF (IFIR=3) 940,1090,940
1090 CALL COPY (1)
      IF (LCPY-KSPK(3)) 1100,1110,1100
1100 IF (MEOF) 1090,40,40
1110 IOUT(ICOL)=KBL2
      JCOL=JCOL-1
      CALL COPY (-1)
      JMAX=ICOL
      IF (NPAR) 40,960,40
C
C          ***** JTYPE = 7
C      COMMON
C
1120 CALL COPY (6)
      ICOL=ICOL+1
      J=-2
      IF (IFIR=4) 940,1140,940
1130 IF (J) 1140,920,1140
1140 J=J+1
1150 CALL COPY (1)
      IF (LCPY-KSPK(4)) 1160,1130,1160
1160 IF (MEOF) 1150,1170,1170
1170 CALL DIAGNO (11)
      GO TO 980
C
C          ***** JTYPE = 8
C      CONTINUE
C
1180 JG00F=12
      IF (L15) 1190,40,1190
1190 IF (MLGC) 1200,1220,1200
1200 DO 1210 I=7,ICOL
1210 IOUT(I)=KBL
      ICOL=6
1220 CALL COPY (8)
      GO TO 960
C
C          ***** JTYPE = 9
C      DATA
C
1230 CALL COPY (4)
      ICOL=ICOL+1
      IF (IFIR=4) 940,1240,940
1240 IF (JINT(JMAX)-KSPK(4)) 1260,1250,1260
1250 IF (LFIR-JMAX) 930,1260,1260
1260 CALL DIAGNO (11)
      GO TO 940
C
C          ***** JTYPE = 10
C      DECODE (C,N,V) LIST /// ENCODE (C,N,V) LIST
C
1270 JG00F=23
      CALL COPY (6)
      ICOL=ICOL+1
      CALL COPY (1)
1280 CALL COPY (1)

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      IF (LCPY-KSPK(2)) 1290,1300,1290
1290 IF (MEOF) 1280,40,40
1300 CALL RSTAT
      IF (L772) 1310,2730,1310
1310 ICOL=ICOL+1
      IOUT(ICOL)=KLR2
      ICOL=ICOL+1
      IOUT(ICOL)=L772
      CALL RLIST
      GO TO 2740
C
C          ***** JTYPE = 11
C      DIMENSION
C
1320 JG00F=13
      CALL COPY (9)
      ICOL=ICOL+1
      NPAR=-1
      DO 1380 I=JCOL,JMAX
      CALL COPY (1)
      IF (NPAR) 1330,1340,1350
1330 IF (LCPY-KSPK(3)) 1380,1370,1380
1340 IF (LCPY-KSPK(5)) 1380,1370,1380
1350 IF (LCPY-KSPK(2)) 1380,1360,1380
1360 ICOL=ICOL+1
      NPAR=-1
      GO TO 1380
1370 NPAR=NPAR+1
1380 CONTINUE
      IF (NPAR) 40,40,970
C
C          ***** JTYPE = 12
C      DOUBLE PRECISION
C
1390 CALL COPY (6)
      ICOL=ICOL+1
      CALL COPY (9)
      GO TO 920
C
C          ***** JTYPE = 13
C      DOUBLE, (CONVERT TO DOUBLE PRECISION).
C
1400 CALL COPY (6)
      IOUT(ICOL+2)=KABC(16)
      IOUT(ICOL+3)=KABC(18)
      IOUT(ICOL+4)=KABC(5)
      IOUT(ICOL+5)=KABC(3)
      IOUT(ICOL+6)=KABC(9)
      IOUT(ICOL+7)=KABC(19)
      IOUT(ICOL+8)=KABC(19)
      IOUT(ICOL+9)=KABC(15)
      IOUT(ICOL+10)=KABC(14)
      ICOL=ICOL+11
      GO TO 930
C
C          ***** JTYPE = 14
C      DO STATEMENT
C
1410 MILD0=1
      CALL COPY (2)
      CALL RSTAT
      IF (L772) 1420,40,1420
1420 JG00F=15

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IF (NDEF) 1450,1450,1430	C 589	1650 CALL DIAGNO (18)	C 652
1430 DO 1440 I=1,NDEF	C 590	C	C 653
IF (LDEF(I)-L772) 1440,40,1440	C 591	C GENERATE NEW STOP COMMAND.	C 654
1440 CONTINUE	C 592	C	C 655
C	C 593	IOUT(7)=KABC(19)	C 656
C ADD STATEMENT NUMNER TO DO-LIST.	C 594	IOUT(8)=KABC(20)	C 657
C	C 595	IOUT(9)=KABC(15)	C 658
1450 IF (NDOS) 1500,1510,1460	C 596	IOUT(10)=KABC(16)	C 659
1460 IF (LDOS(NDOS)-L772) 1470,1540,1470	C 597	MILDO=-1	C 660
1470 IF (NDOS=1) 1450,1510,1480	C 598	CALL DLIST (MERR)	C 661
1480 DO 1490 I=2,NDOS	C 599	IF (MERR) 1670,1660,1670	C 662
IF (LDOS(I)-L772) 1490,40,1490	C 600	1660 JINT(1)=3	C 663
1490 CONTINUE	C 601	JINT(2)=55	C 664
1500 IF (NDOS=10) 1510,1560,1560	C 602	JINT(3)=L15	C 665
1510 NDOS=NDOS+1	C 603	JINT(4)=10	C 666
LDOS(NDOS)=L772	C 604	CALL IOSYS1 (2,JINT,4)	C 667
IF (NREF) 1540,1540,1520	C 605	CALL IOSYS1 (2,IOUT,10)	C 668
1520 DO 1530 I=1,NREF	C 606	NRT1=NRT1+1	C 669
IF (LREF(I)-L772) 1530,1550,1530	C 607	C	C 670
1530 CONTINUE	C 608	C LOOK FOR FORMATS ON TAPE 2	C 671
1540 CALL RLIST	C 609	C	C 672
IOUT(ICOL+2)=KLR2	C 610	1670 IF (NRT2) 1750,1750,1680	C 673
IOUT(ICOL+3)=L772	C 611	1680 CALL IOSYS2 (1,0,0)	C 674
ICOL=ICOL+4	C 612	C	C 675
GO TO 940	C 613	C INSERT BLANK COMMENT CARD.	C 676
C	C 614	C	C 677
1550 CALL DIAGNO (27)	C 615	IF (NBLC) 1710,1690,1710	C 678
GO TO 1540	C 616	1690 IOUT(1)=KABC(3)	C 679
C	C 617	DO 1700 I=2,7	C 680
1560 JGNDF=24	C 618	1700 IOUT(I)=KBL	C 681
MP1=N	C 619	KLASS=1	C 682
MP2=0	C 620	ITYPE=0	C 683
GO TO 40	C 621	L15=0	C 684
C	C 622	IMAX=7	C 685
C END DO-LOOP STATEMENT PROCESSING.	C 623	CALL IOSYS1 (2,KILI,4)	C 686
C	C 624	CALL IOSYS1 (2,IOUT,7)	C 687
C	C 625	NRT1=NRT1+1	C 688
C ***** JTYPE = 15	C 626	C	C 689
C END FILE	C 627	C TRANSFER FORMATS	C 690
C	C 628	C	C 691
1570 IF (IFIR=12) 30,1580,30	C 629	1710 CALL IOSYS2 (3,KILI,4)	C 692
1580 CALL COPY (3)	C 630	CALL IOSYS2 (3,IOUT,IMAX)	C 693
ICOL=ICOL+1	C 631	NRT2=NRT2-1	C 694
CALL COPY (4)	C 632	NREC=ITYPE	C 695
GO TO 920	C 633	MILDO=-1	C 696
C	C 634	CALL DLIST (MERR)	C 697
C ***** JTYPE = 16	C 635	IF (MERR) 1730,1720,1730	C 698
C END STATEMENT.	C 636	1720 CALL IOSYS1 (2,KILI,4)	C 699
C	C 637	CALL IOSYS1 (2,IOUT,IMAX)	C 700
1590 IF (NDOS) 1600,1610,1600	C 638	NRT1=NRT1+1	C 701
1600 CALL DIAGNO (16)	C 639	1730 IF (NRT2) 1740,1740,1710	C 702
WRITE (6,2860) (LDOS(I),I=1,NDOS)	C 640	1740 CALL IOSYS2 (0,0,0)	C 703
CALL PAGE (1)	C 641	C	C 704
C	C 642	C WRITE END STATEMENT	C 705
1610 IF (L15) 1620,1670,1620	C 643	C	C 706
YES. IS IT REFERENCED....	C 644	1750 DO 1760 I=1,6	C 707
1620 IF (NDEF) 1670,1670,1630	C 645	1760 IOUT(I)=KBL	C 708
1630 DO 1640 I=1,NDEF	C 646	IOUT(7)=KABC(5)	C 709
IF (LREF(I)-L15) 1640,1650,1640	C 647	IOUT(8)=KABC(14)	C 710
1640 CONTINUE	C 648	IOUT(9)=KABC(4)	C 711
C	C 649	KLASS=R	C 712
1650 IF (L15) 1660,1660,1650	C 650	ITYPE=20	C 713
NO. IGNORE THE NUMNER.	C 651	L15=0	C 714
GO TO 1670			
YES.			

```

IMAX=9
CALL IOSYS1 (2,KILI,4)
CALL IOSYS1 (2,IOUT,9)
NRT1=NRT1+1
CALL IOSYS1 (1,0,0)
RETURN
C
C
C *****
C * PASS1 NORMALLY EXITS HERE. *
C *****
C
C ***** JTYPE = 17
C EQUIVALENCE
C
1770 CALL COPY (10)
1780 CALL COPY (1)
ICOL=ICOL+1
CALL COPY (-1)
IF (MEOF) 1780,970,970
C
C ***** JTYPE = 18
C FINIS.
C
1790 MSTOP=-1
RETURN
C
C ***** JTYPE = 19
C FORMAT (
C
1800 JGOOF=17
IF (L15) 1810,40,1810
1810 IF (JINT(JMAX)=KSPK(5)) 40,1820,40
1820 IF (MEX) 1850,1830,1850
1830 CALL COPY (6)
ICOL=ICOL+1
CALL COPY (0)
IF (MCOL) 1840,960,1840
1840 IMAX=ICOL
JTYPE=NREC
CALL IOSYS2 (2,KILI,4)
CALL IOSYS2 (2,IOUT,IMAX)
NRT2=NRT2+1
NBLC=NBCOLD
GO TO 50
C
C EXEMPT FLAG IS ON - TRANSFER TO TAPE1 OR TAPE2 WITHOUT REMOVING
C ANY BLANKS.
C
1850 IF (MCOL) 1860,1870,1860
1860 ITYPE=NREC
CALL IOSYS2 (2,KILI,4)
CALL IOSYS2 (2,JINT,JMAX)
NRT2=NRT2+1
NBLC=NBCOLD
GO TO 50
1870 CALL DLIST (MERR)
IF (MERR) 50,1880,50
1880 CALL IOSYS1 (2,KILI,4)
CALL IOSYS1 (2,JINT,JMAX)
NRT1=NRT1+1
GO TO 50
C

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C 715
C 716
C 717
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C 720
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C 768
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C 772
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C 775
C 776
C 777

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C ***** JTYPE = 20
C FORTRAN,ETC
C
1890 DO 1900 I=7,JMAX
1900 IOUT(I)=JINT(I)
IMAX=JMAX
GO TO 980
C
C ***** JTYPE = 21
C FREQUENCY
C
1910 JGOOF=8
GO TO 40
C
C ***** JTYPE = 22
C IDENT
C INTRODUCES COMPASS ROUTINE. SAME AS JTYPE=1, BUT REQUIRES
C LETTERS "END "
C
1920 IF (NFORT-1) 1930,1940,1930
1930 CALL DIAGNO (14)
1940 CALL DIAGNO (26)
CALL NOPRO (1)
CALL MEADER
RETURN
C
C ***** JTYPE = 23
C GO TO (***,***),N
C
1950 JGOOF=19
CALL COPY (2)
ICOL=ICOL+1
CALL COPY (2)
ICOL=ICOL+1
CALL COPY (1)
MILDO=-1
MTRAN=-1
C
C PROCESS --GO TO LIST--.
C
1960 ICOL=ICOL+1
IOUT(ICOL)=KLR2
CALL RSTAT
IF (L772) 1970,40,1970
1970 ICOL=ICOL+1
IOUT(ICOL)=L772
CALL RLIST
CALL COPY (1)
IF (LCPY-KSPK(2)) 1980,1960,1980
1980 IF (LCPY-KSPK(5)) 40,1990,40
1990 CALL COPY (1)
IF (LCPY-KSPK(2)) 2000,940,2000
2000 IOUT(ICOL+2)=IOUT(ICOL)
IOUT(ICOL)=KSPK(2)
ICOL=ICOL+2
GO TO 940
C
C ***** JTYPE = 24
C GO TO ****
C
2010 JGOOF=19
MILDO=-1
MTRAN=-1
CALL COPY (2)

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C 778
C 779
C 780
C 781
C 782
C 783
C 784
C 785
C 786
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C 801
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C 820
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C 837
C 838
C 839
C 840

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ICOL=ICOL+1
CALL COPY (2)
ICOL=ICOL-1
CALL RSTAT
C
C TEST REF STATEMENT FOR GO TO N OR GO TO N. (LIST)
C
C IF (L772) 2020,2060,2020
C
C STATEMENT IS --GO TO 12345--.
C
2020 IF (L15) 2030,2050,2030
2030 IF (MLGC) 2050,2040,2050
2040 CALL DIAGNO (18)
2050 IOUT(ICOL+1)=KLR2
ICOL=ICOL+2
IOUT(ICOL)=L772
CALL RLIST
GO TO 960
C
C GO TO N OR GO TO N.LIST
C
2060 IF (IFIR-2) 2070,2080,2070
C
C STATEMENT IS --GO TO N--.
C
2070 IF (IFIR-12) 40,940,40
C
C GO TO N.(LIST)
C
2080 CALL COPY (1)
IF (LCPY-KSPK(2)) 2080,2090,2080
2090 ICOL=ICOL+1
CALL COPY (1)
IF (LCPY-KSPK(3)) 40,2100,40
2100 CALL RSTAT
IF (L772) 2110,40,2110
2110 IOUT(ICOL+1)=KLR2
ICOL=ICOL+2
IOUT(ICOL)=L772
CALL RLIST
CALL COPY (1)
IF (LCPY-KSPK(2)) 2120,2100,2120
2120 IF (LCPY-KSPK(5)) 40,960,40
C
C ***** JTYPE = 25
C IF ACCUMULATOR OVERFLOW (QUOTIENT, DIVIDE CHECK, END FILE, SENSE)
C
2130 CALL COPY (2)
ICOL=ICOL+1
CALL COPY (11)
ICOL=ICOL+1
CALL COPY (8)
C
C PROCESS TWO-WAY TRANSFER.
C
2140 ICOL=ICOL+1
JGNOF=20
MILDO=-1
IOUT(ICOL)=KLM2
CALL RSTAT
IF (L772) 2150,40,2150
2150 ICOL=ICOL+1

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C 841 IOUT(ICOL)=L772
C 842 CALL RLIST
C 843 CALL COPY (1)
C 844 IF (LCPY-KSPK(2)) 40,2160,40
C 845 2160 CALL RSTAT
C 846 IF (L772) 2050,40,2050
C 847
C ***** JTYPE = 26
C IF QUOTIENT OVERFLOW
C
2170 CALL COPY (2)
ICOL=ICOL+1
CALL COPY (8)
ICOL=ICOL+1
CALL COPY (8)
GO TO 2140
C
C ***** JTYPE = 27
C IF(DIVIDE CHECK)
C
2180 CALL COPY (2)
ICOL=ICOL+1
CALL COPY (7)
ICOL=ICOL+1
CALL COPY (6)
GO TO 2140
C
C ***** JTYPE = 28
C IF(END FILE 1)
C
2190 CALL COPY (2)
ICOL=ICOL+1
CALL COPY (8)
ICOL=ICOL+1
DO 2200 I=JCOL,JMAX
IF (JINT(1)-KSPK(5)) 2200,2210,2200
2200 CONTINUE
JGNOF=20
GO TO 40
2210 CALL COPY (1)
IF (LCPY-KSPK(5)) 2210,2140,2210
C
C ***** JTYPE = 29
C IF(SENSE LIGHT 5) 1,2
C
2220 JGNOF=20
CALL COPY (2)
ICOL=ICOL+1
CALL COPY (6)
ICOL=ICOL+1
CALL COPY (5)
ICOL=ICOL+1
CALL COPY (2)
IF (LCPY-KSPK(5)) 40,2140,40
C
C ***** JTYPE = 30
C IF(SENSE SWITCH 5) 1,2
C
2230 CALL COPY (2)
ICOL=ICOL+1
CALL COPY (6)
ICOL=ICOL+1
CALL COPY (6)

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C 904
C 905
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C 966

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ICOL=ICOL+1
CALL COPY (2)
JGOOF=20
IF (LCPY-KSPK(5)) 40,2140,40
C
C ***** JTYPE = 31
C IF (ARITHMETIC) 1,2,3 OR IF (LOGICAL) STATEMENT.
C
2240 JGOOF=20
CALL COPY (2)
ICOL=ICOL+1
C COPY UNTIL CLOSED PARENTHESES
CALL COPY (-1)
IF (MEOF) 2250,40,40
2250 ICOL=ICOL+1
CALL RSTAT
IF (L772) 2260,2350,2260
C
C STATEMENT IS IF (ARITHMETIC) 1,2,3
C
2260 NCOM=0
MILDO=-1
CALL DLIST (MERR)
IF (MERR) 40,2270,40
2270 IOUT(ICOL+1)=KLR2
ICOL=ICOL+2
IOUT(ICOL)=L772
CALL RLIST
CALL COPY (1)
IF (LCPY-KSPK(2)) 2280,2320,2280
2280 IF (LCPY-KERM) 40,2290,40
2290 IF (NCOM=1) 40,2300,2310
2300 CALL DIAGNO (18)
2310 MTRAN=-1
GO TO 970
2320 NCOM=NCOM+1
IF (NCOM=3) 2340,2330,40
2330 CALL DIAGNO (18)
2340 CALL RSTAT
IF (L772) 2270,40,2270
C
C STATEMENT IS IF (LOGICAL) STATEMENT
C
2350 MLGC=-1
C LOOK FOR FIRST SPECIAL CHARACTER.
DO 2370 LFIR=JCOL,JMAX
JT=JINT(LFIR)
DO 2360 IFIR=1,11
IF (JT-KSPK(IFIR)) 2360,450,2360
2360 CONTINUE
2370 CONTINUE
LFIR=6
IFIR=12
GO TO 450
C
C ***** JTYPE = 32
C
C NAMELIST
C
2380 JGOOF=21
CALL COPY (8)
ICOL=ICOL+1
J=-1
IF (IFIR=4) 40,1140,40

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C 967
C 968
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C 978
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C 1019
C 1020
C 1021
C 1022
C 1023
C 1024
C 1025
C 1026
C 1027
C 1028
C 1029
C
C ***** JTYPE = 33
C WRITE , PUNCH, READ, ACCEPT.
C
2390 JGOOF=22
CALL COPY (NINS)
ICOL=ICOL+1
CALL RSTAT
IF (L772) 2440,2400,2440
C
C HAVE WRITE FMT,LIST
C
2400 IF (IFIR=2) 2410,2420,2410
2410 IF (IFIR=12) 40,940,40
2420 CALL COPY (1)
IF (LCPY-KSPK(2)) 2430,920,2430
2430 IF (MEOF) 2420,40,40
C
C HAVE WRITE 12345 LIST
C
2440 CALL RLIST
IOUT(ICOL+1)=KLR2
ICOL=ICOL+2
IOUT(ICOL)=L772
IF (IFIR=2) 2450,2420,2450
2450 IF (JMAX-JCOL) 2460,2460,40
2460 IMAX=ICOL
GO TO 960
C
C ***** JTYPE = 34
C SEGMENT,OVERLAY
C
2470 NFORT=NFORT-1
IF (NFORT,NE,0) CALL DIAGNO (14)
CALL COPY (NINS)
CALL HEADER
IF (IFIR=3) 40,1090,40
C
C ***** JTYPE = 35
C PROGRAM, SUBROUTINE, FUNCTION.
C
2480 IF (NFORT=1) 2490,2500,2490
2490 CALL DIAGNO (14)
2500 CALL COPY (NINS)
CALL HEADER
ICOL=ICOL+1
IF (IFIR=3) 940,1090,940
C
C ***** JTYPE = 44
C WRITE OUTPUT TAPE
C
2510 CALL COPY (1)
C ***** JTYPE = 36
C READ INPUT TAPE
C
2520 CALL COPY (4)
JGOOF=22
ICOL=ICOL+2
IOUT(ICOL)=KSPK(3)
JCOL=JCOL+1
DO 2530 JAVB=JCOL,JMAX
IF (JINT(JAVB-1)-KABC(5)) 2530,2540,2530
2530 CONTINUE

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C 1030
C 1031
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C 1089
C 1090
C 1091
C 1092

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2540 CALL COPY (1)
IF (LCPY=KSPK(2)) 2550,2560,2550
2550 IF (MEOF) 2540,40,40
2560 CALL RSTAT
IF (L772) 2620,2570,2620
2570 KCLASS=6
2580 CALL COPY (1)
IF (LCPY=KSPK(2)) 2590,2610,2590
2590 IF (MEOF) 2580,2600,2600
2600 ICOL=ICOL+1
IOUT(ICOL)=KSPK(5)
IMAX=ICOL
GO TO 960
2610 IOUT(ICOL)=KSPK(5)
ICOL=ICOL+1
GO TO 940
2620 IOUT(ICOL+1)=KLR2
ICOL=ICOL+2
IOUT(ICOL)=L772
CALL RLIST
CALL COPY (1)
IF (LCPY=KSPK(2)) 2630,2610,2630
2630 IF (LCPY=KSPK(2)) 40,2600,2600
C
C ***** JTYPE = 45
C WRITE TAPE
2640 CALL COPY (1)
C ***** JTYPE = 37
C READ TAPE
C
2650 CALL COPY (4)
JCOL=LAST+1
ICOL=ICOL+2
IOUT(ICOL)=KSPK(3)
2660 CALL COPY (1)
IF (LCPY=KSPK(2)) 2660,2670,2660
2670 IOUT(ICOL)=KSPK(5)
GO TO 920
C
C ***** JTYPE = 38
C READ ( AND WRITE (
C
2680 JGOOF=23
CALL COPY (NINS-1)
ICOL=ICOL+1
CALL COPY (1)
2690 CALL COPY (1)
IF (LCPY=KSPK(2)) 2700,2720,2700
2700 IF (LCPY=KSPK(5)) 2710,920,2710
2710 IF (MEOF) 2690,40,40
C
C GET FORMAT
C
2720 CALL RSTAT
IF (L772) 2760,2730,2760
2730 KCLASS=6
2740 CALL COPY (1)
IF (LCPY=KSPK(5)) 2750,920,2750
2750 IF (MEOF) 2740,40,40
2760 IOUT(ICOL+1)=KLR2
ICOL=ICOL+2
IOUT(ICOL)=L772

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C 1093
C 1094
C 1095
C 1096
C 1097
C 1098
C 1099
C 1100
C 1101
C 1102
C 1103
C 1104
C 1105
C 1106
C 1107
C 1108
C 1109
C 1110
C 1111
C 1112
C 1113
C 1114
C 1115
C 1116
C 1117
C 1118
C 1119
C 1120
C 1121
C 1122
C 1123
C 1124
C 1125
C 1126
C 1127
C 1128
C 1129
C 1130
C 1131
C 1132
C 1133
C 1134
C 1135
C 1136
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C 1138
C 1139
C 1140
C 1141
C 1142
C 1143
C 1144
C 1145
C 1146
C 1147
C 1148
C 1149
C 1150
C 1151
C 1152
C 1153
C 1154
C 1155

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CALL RLIST
CALL COPY (1)
IF (LCPY=KSPK(5)) 40,920,40
C
C ***** JTYPE = 39
C RETURN
C
2770 CALL COPY (6)
MTRAN=-1
GO TO 920
C
C ***** JTYPE = 40
C SENSE LIGHT
C
2780 CALL COPY (5)
ICOL=ICOL+1
CALL COPY (5)
ICOL=ICOL+1
CALL COPY (0)
IMAX=ICOL
GO TO 950
C
C ***** JTYPE = 41
C STOP
C
2790 CALL COPY (4)
MILDO=-1
MTRAN=-1
GO TO 920
C
C ***** JTYPE = 42
C IF (UNIT,N) L1,L2,L3,L4
C
2800 CALL COPY (2)
ICOL=ICOL+1
CALL COPY (-1)
IF (MEOF,GE,0) GO TO 40
ICOL=ICOL+1
MILDO=1
CALL DLIST (MERR)
IF (MERR,NE,0) GO TO 40
DO 2810 I=1,4
CALL RSTAT
IF (L772,EQ,0) GO TO 40
ICOL=ICOL+2
IOUT(ICOL-1)=KLR2
IOUT(ICOL)=L772
CALL RLIST
CALL COPY (1)
IF (LCPY,NE,KSPK(2)) GO TO 2820
2810 CONTINUE
GO TO 40
2820 IF (I,EQ,4,AND,LCPY,EQ,KERM) GO TO 970
GO TO 40
C
C ***** JTYPE = 43
C TYPE INTEGER, TYPE REAL ETC. STATEMENT.
C
2830 DO 2840 I=7,LAST
2840 JINT(I)=KBL
GO TO 730
C
2850 FORMAT (14A6)

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C 1156
C 1157
C 1158
C 1159
C 1160
C 1161
C 1162
C 1163
C 1164
C 1165
C 1166
C 1167
C 1168
C 1169
C 1170
C 1171
C 1172
C 1173
C 1174
C 1175
C 1176
C 1177
C 1178
C 1179
C 1180
C 1181
C 1182
C 1183
C 1184
C 1185
C 1186
C 1187
C 1188
C 1189
C 1190
C 1191
C 1192
C 1193
C 1194
C 1195
C 1196
C 1197
C 1198
C 1199
C 1200
C 1201
C 1202
C 1203
C 1204
C 1205
C 1206
C 1207
C 1208
C 1209
C 1210
C 1211
C 1212
C 1213
C 1214
C 1215
C 1216
C 1217
C 1218

```


2860	FORMAT (13X,3H***,1016,3H***)	C	1219	210	DO 230 I=1,LEN	D	61
C2870	FORMAT (8HOUTYPE =,13,45H IS ILLEGAL. I AM CONFUSED AND CANNOT GO	C	1220	NR=NR+1	D	62	
	END	C	1221-	LIST(I)=IOBUF(NR)	D	63	
	SUBROUTINE IOSYS1 (OP,LIST,LEN)	D	1	IF (NR=256) 230,220,220	D	64	
C		D	2	220 READ (1) IOBUF	D	65	
C	THIS SUBROUTINE BUFFERS IN AND OUT BINARY RECORDS IN 256 WORD	D	3	NR=0	D	66	
C	BLOCKS VIA TAPE UNIT 1.	D	4	230 CONTINUE	D	67	
C		D	5	NMR=NMR+LEN	D	68	
C	OP CODES PERMITTED.	D	6	IF (NMR-MR) 250,250,240	D	69	
C	0 1 2 3	D	7	240 PAUSE 24	D	70	
C	ERASE REWIND WRITE READ	D	8	250 RETURN	D	71	
C		D	9	END	D	72-	
	DIMENSION LIST(1), IOBUF(256)	D	10	SUBROUTINE IOSYS2 (OP,LIST,LEN)	E	1	
	INTEGER OP,OPSW,RWS	D	11		E	2	
C		D	12	C THIS SUBROUTINE BUFFERS IN AND OUT BINARY RECORDS IN 256 WORD	E	3	
C		D	13	C BLOCKS VIA TAPE UNIT 2.	E	4	
	10 OPSW=OP+1	D	14	C OP CODES PERMITTED.	E	5	
	GO TO (20,30,70,150),OPSW	D	15	C 0 1 2 3	E	6	
C		D	16	C ERASE REWIND WRITE READ	E	7	
C	ERASE	D	17	C	E	8	
C		D	18	C	E	9	
	20 MR=0	D	19	C DIMENSION LIST(1), IOBUF(256)	E	10	
	GO TO 60	D	20	C INTEGER OP,OPSW,RWS	E	11	
C		D	21	C	E	12	
C	REWIND	D	22	C	E	13	
C		D	23	C	E	14	
	30 IF (RWS*NR) 60,60,40	D	24	10 OPSW=OP+1	E	15	
	40 NR=NR+1	D	25	GO TO (20,30,70,150),OPSW	E	16	
	DO 50 I=NR,256	D	26	C ERASE	E	17	
	50 IOBUF(I)=0	D	27	C	E	18	
	WRITE (1) IOBUF	D	28	20 MR=0	E	19	
	60 REWIND 1	D	29	GO TO 60	E	20	
	RWS=0	D	30	C	E	21	
	NR=0	D	31	C REWIND	E	22	
	RETURN	D	32	C	E	23	
C		D	33	C	E	24	
C	WRITE	D	34	30 IF (RWS*NR) 60,60,40	E	25	
C		D	35	40 NR=NR+1	E	26	
	70 IF (RWS) 80,90,100	D	36	DO 50 I=NR,256	E	27	
	80 PAUSE 21	D	37	50 IOBUF(I)=0	E	28	
	90 RWS=1	D	38	WRITE (2) IOBUF	E	29	
	100 IF (LEN) 140,140,110	D	39	60 REWIND 2	E	30	
	110 DO 130 I=1,LEN	D	40	RWS=0	E	31	
	NR=NR+1	D	41	NR=0	E	32	
	IOBUF(NR)=LIST(I)	D	42	RETURN	E	33	
	IF (NR=256) 130,120,120	D	43	C WRITE	E	34	
	120 WRITE (1) IOBUF	D	44	C	E	35	
	NR=0	D	45	70 IF (RWS) 80,90,100	E	36	
	130 CONTINUE	D	46	80 PAUSE 21	E	37	
	MR=MR+LEN	D	47	90 RWS=1	E	38	
	140 RETURN	D	48	100 IF (LEN) 140,140,110	E	39	
C		D	49	110 DO 130 I=1,LEN	E	40	
C	READ	D	50	NR=NR+1	E	41	
	150 IF (MR) 160,160,170	D	51	IOBUF(NR)=LIST(I)	E	42	
	160 PAUSE 22	D	52	IF (NR=256) 130,120,120	E	43	
	170 IF (RWS) 200,190,180	D	53	120 WRITE (2) IOBUF	E	44	
	180 PAUSE 23	D	54	NR=0	E	45	
	190 REWIND 1	D	55	130 CONTINUE	E	46	
	READ (1) IOBUF	D	56	MR=MR+LEN	E	47	
	RWS=1	D	57	140 RETURN	E	48	
	NMR=0	D	58	C READ	E	49	
	200 IF (LEN) 250,250,216	D	59	C	E	50	
		D	60	C	E	51	

150	IF (MR) 160,160,170	E	52	5	,KPRIN	,NOPT	F	44
160	PAUSE 22	E	53				F	45
170	IF (RWS) 200,190,180	E	54	C			F	46
180	PAUSE 23	E	55				F	47
190	READ (2) IOBUF	E	56				F	48
	RWS=-1	E	57				F	49
	NMR=0	E	58	C			F	50
200	IF (LEN) 250,250,210	E	59		DO 10 I=1,72		F	51
210	DO 230 I=1,LEN	E	60		10 JINT(I)=KBUFF(I)		F	52
	NR=NR+1	E	61		IF (KODE) 20,20,30		F	53
	LIST(I)=IOBUF(NR)	E	62	C			F	54
	IF (NR=256) 230,220,220	E	63		20 CALL HEADER		F	55
220	READ (2) IOBUF	E	64		IF (MLIST,NE,0) CALL PAGE (0)		F	56
	NR=0	E	65		KOL73(1)=KBUFF(73)		F	57
230	CONTINUE	E	66		KOL73(2)=KBUFF(74)		F	58
	NMR=NMR+LEN	E	67		KOL73(3)=KBUFF(75)		F	59
	IF (NMR=MR) 250,250,240	E	68	C			F	60
240	PAUSE 24	E	69		30 MEOF=-1		F	61
250	RETURN	E	70		KODE=KODE+1		F	62
	END	E	71-		IF (MLIST) 40,50,40		F	63
	SUBROUTINE SKARD	F	1		40 WRITE (6,180) NREC,KBUFF		F	64
C		F	2		CALL PAGE (1)		F	65
C	SUPER-CARD INPUT ROUTINE.	F	3		50 K7=7		F	66
C	THIS ROUTINE READS FORTRAN STATEMENTS WITH UP TO 19 CONTINUATION	F	4		K72=72		F	67
C	CARDS AND PACKS THE STATEMENT INTO THE SUPER-CARD --IOUT--.	F	5	C		LOOK FOR CONTINUATION CARDS AND TRANSFER THEM TO IOUT VIA KBUFF,	F	68
C		F	6	C			F	69
	COMMON	F	7	C			F	70
	1 JINT(1600) ,JOB(80) ,KBUFF(80)	F	8		DO 140 J=2,20		F	71
	2 ,LDEF(3000) ,LREF(1000)	F	9		CALL READER		F	72
	DIMENSION KIM(80,20)	F	10		IF (KB6=KBL) 60,150,60		F	73
	EQUIVALENCE(JINT,KIM)	F	11		60 IF (KBL-KC) 70,150,70		F	74
C		F	12		70 IF (KBL-KSTAR) 80,150,80		F	75
	COMMON /LARGE/ NWORDS ,IOUT(1326)	F	13		80 IF (KBL-KDOL) 90,150,90		F	76
C		F	14		90 IF (KBL-KPER) 100,150,100		F	77
	COMMON /MISC/	F	15		100 IF (KB6-KZ) 110,150,110		F	78
	1 ICOL ,IFIR ,IPASS ,ISTAR	F	16		110 K7=K7+66		F	79
	2 ,JCOL ,JMAX ,KILI(4) ,KOL73(3)	F	17		K72=K72+66		F	80
	3 ,L772 ,LAST ,LCPY ,LDOS(10)	F	18		L=6		F	81
	4 ,LFIR ,LQUAL ,MEOF ,MILDO	F	19		DO 120 I=K7,K72		F	82
	5 ,MLGC ,MP2 ,MTRAN ,NBLC	F	20		L=L+1		F	83
	6 ,NCD ,NDEF ,NDOS ,NINS	F	21		120 JINT(I)=KBUFF(L)		F	84
	7 ,NPAR ,NPUN ,NREC ,NREF	F	22		IF (MLIST) 130,140,130		F	85
	8 ,NRT1 ,NRT2 ,NTEMP(5) ,NREQ	F	23		130 WRITE (6,190) KBUFF		F	86
	9 ,NTRAN ,KEND(3) ,MPUN ,MPRIN	F	24		CALL PAGE (1)		F	87
	EQUIVALENCE (KILI(1),KLASS) , (KILI(2),JTYPE)	F	25		140 CONTINUE		F	88
	EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)	F	26	C		NINETEEN CONTINUATION CARDS. LOAD EMPTY BUFFER BEFORE EXITING.	F	89
C		F	27	C			F	90
	COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)	F	28	C			F	91
C		F	29		J=21		F	92
	COMMON /CONTDY/ NKTRL,KTRL(4,25)	F	30		CALL READER		F	93
C		F	31				F	94
C		F	32	C		LOCATE LAST NON-BLANK COLUMN IN CARD AND EXIT.	F	95
	COMMON /HOL2/ KHL2,KLR2,KLP2,KRP2,KERM	F	33	C			F	96
C		F	34		150 NCD=J-1		F	97
	COMMON /INIT/ LINE,MPAGE,NPAGE,KODE	F	35		L=K72-6		F	98
C		F	36		JMAX=K72+1		F	99
	COMMON /KSTCOM/ NKST,KST(13,65)	F	37		DO 160 I=1,L		F	100
C		F	38		JMAX=JMAX-1		F	101
	COMMON /CHOICE/	F	39		IF (JINT(JMAX)-KBL) 170,160,170		F	102
	1 ,KB15 ,KPUN ,MCOL ,MCOM	F	40		160 CONTINUE		F	103
	2 ,MEX ,KD79 ,MLBL ,MSTOP	F	41		170 JINT(JMAX+1)=KERM		F	104
	3 ,MLIST ,NROUT ,MREF ,MSKP	F	42		RETURN		F	105
	4 ,KD15 ,MSEB ,MRIT ,JUST	F	43	C			F	106

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180 FORMAT (1X,I4,2X,80A1)
190 FORMAT (7X,80A1)
END
SUBROUTINE HEADER
C
C THIS ROUTINE CENTERS JOB HEADINGS
C
COMMON
1 JINT(1600) ,JOB(80) ,KBUFF(80)
2 ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
C
COMMON /LARGE/ NWORDS ,IOUT(1326)
C
COMMON /MISC/
1 ICOL ,IFIR ,IPASS ,ISTAR
2 JCOL ,JMAX ,KILI(4) ,KOL73(3)
3 L772 ,LAST ,LCPY ,LDOS(10)
4 LFIR ,LQUAL ,MEOF ,MILDO
5 MLGC ,MP2 ,MTRAN ,NBLC
6 NCD ,NDEF ,NDOS ,NINS
7 NPAR ,NPUN ,NREC ,NREF
8 NRT1 ,NRT2 ,NTEMP(5) ,NXEQ
9 NTRAN ,KEND(3) ,MPUN ,MPRIN
EQUIVALENCE (KILI(1),KLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)
C
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)
C
COMMON /CONTDY/ NKTRL,KTRL(4,25)
C
COMMON /MOL2/ KBL2,KLR2,KLP2,KRP2,KERM
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE
C
COMMON /KSTCOM/ NKST,KST(13,65)
C
COMMON /CHOICE/
1 KB15 ,KPUN ,MCOL ,MCOM
2 MEX ,KD79 ,MLBL ,MSTOP
3 MLIST ,NROUT ,MREF ,MSKP
4 KD15 ,MSER ,MRIT ,JUST
5 KPRIN ,NOPT
C
IF (IPASS-1) 30,10,30
10 DO 20 I=1,72
20 JOB(I)=JINT(I)
GO TO 90
C
30 DO 40 I=1,80
40 JOB(I)=IOUT(I)
IF (MLBL) 90,50,90
50 I=(NROUT-1)/26
J=NROUT-I+26
IF (I) 60,70,60
60 KOL73(2)=KABC(1)
KOL73(3)=KABC(J)
GO TO 80
C
70 KOL73(3)=KBL
KOL73(2)=KABC(J)
80 KOL73(1)=KBL
F 107 90 DO 100 I=73,80
F 108 100 JOB(I)=KBL
F 109-
C
C COMPRESS STATEMENT BY ELIMINATING MULTIPLE BLANKS
C
DO 110 I=1,80
IF (JOB(I)=KBL) 120,110,120
110 CONTINUE
RETURN
C
120 JOB(I)=JOB(I)
J=1
IB=I+1
DO 150 I=IB,80
IF (JOB(I)=KBL) 140,130,140
130 IF (JOB(I-1)=KBL) 140,150,140
140 J=J+1
JOB(J)=JOB(I)
150 CONTINUE
C
IB=J+1
DO 160 I=IB,80
160 JOB(I)=KBL
C
C CENTER HEADING
C
IB=(80-J)/2
170 I=J+IB
JOB(I)=JOB(J)
J=J-1
IF (J) 180,180,170
C
C ELIMINATE REMAINING NON-BLANKS
C
180 IB=I-1
DO 190 I=1,IB
190 JOB(I)=KBL
RETURN
END
SUBROUTINE PAGE (N)
C
C THIS SUBROUTINE DOES THE GENERAL PAGE COUNTING FOR TIDY WHILE
C LIMITING THE OUTPUT TO 40 LINES PER PAGE.
C
COMMON
1 JINT(1600) ,JOB(80) ,KBUFF(80)
2 ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
C
COMMON /LARGE/ NWORDS ,IOUT(1326)
C
COMMON /MISC/
1 ICOL ,IFIR ,IPASS ,ISTAR
2 JCOL ,JMAX ,KILI(4) ,KOL73(3)
3 L772 ,LAST ,LCPY ,LDOS(10)
4 LFIR ,LQUAL ,MEOF ,MILDO
5 MLGC ,MP2 ,MTRAN ,NBLC
6 NCD ,NDEF ,NDOS ,NINS
7 NPAR ,NPUN ,NREC ,NREF
8 NRT1 ,NRT2 ,NTEMP(5) ,NXEQ
9 NTRAN ,KEND(3) ,MPUN ,MPRIN
EQUIVALENCE (KILI(1),KLASS) , ( KILI(2),JTYPE)

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EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)          H 25
C COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)      H 26
C                                                     H 27
C COMMON /CONTDY/ NKTRL,KTRL(4,25)                   H 28
C                                                     H 29
C COMMON /MOL2/ KBL2,KLR2,KLP2,KRP2,KERM            H 30
C                                                     H 31
C COMMON /INIT/ LINE,MPAGE,NPAGE,KODE                H 32
C                                                     H 33
C COMMON /KSTCOM/ NKST,KST(13,65)                    H 34
C                                                     H 35
C COMMON /CHOICE/                                     H 36
1   KB15          ,KPUN          ,MCOL          ,MCOM          H 37
2   ,MEX          ,KD79          ,MLBL          ,MSTOP        H 38
3   ,MLIST        ,NROUT        ,MREF          ,MSKP         H 39
4   ,KD15        ,MSEB          ,MRIT          ,JUST         H 40
5   ,KPRIN       ,NOPT          ,              ,              H 41
C                                                     H 42
10 IF (N) 20,50,90                                   H 43
20 IF (LINE-N=40) 30,40,40                           H 44
30 LINE=LINE-N                                        H 45
   RETURN                                             H 46
C                                                     H 47
40 LINE=-N                                           H 48
   GO TO 70                                          H 49
C                                                     H 50
50 IF (LINE) 60,80,60                                 H 51
C                                                     H 52
60 LINE=0                                             H 53
70 NPAGE=NPAGE+1                                     H 54
   MPAGE=MPAGE+1                                     H 55
   WRITE (6,100) NROUT,IPASS,MPAGE,NPAGE,JOB        H 56
80 RETURN                                             H 57
90 LINE=LINE+N                                        H 58
   IF (LINE=40) 80,60,60                             H 59
C                                                     H 60
100 FORMAT (1M1,6X,28H* T I D Y *          ROUTINE,I4,4X,4HPASS,12,2X, H 61
      14MPAGE,13,21X,4HPAGE,I4/7X,80A1/1X)         H 62
   END                                               H 63
   SUBROUTINE CONTRL                                H 64
C I 1
C THIS SUBROUTINE EXECUTES THE TIDY CONTROL STATEMENTS. I 2
C ALL TIDY CONTROL STATEMENTS MUST HAVE AN * PUNCHED IN COLUMN 1. I 3
C I 4
C I 5
C 1 BASE NOBASE KB15                                I 6
C 2 IOIN ***** KD79                               I 7
C 3 IDST ***** KD79                               I 8
C 4 ROUT ***** NROUT                               I 9
C 5 STAT ***** KD15                               I 10
C 6 CARD NOCARD MPUN                                I 11
C 7 COLL NOCOLL MCOL                                I 12
C 8 COMM NOCOMM MCOM                                I 13
C 9 EXEM NOEXEM MEX                                 I 14
C 10 LABE NOLABE MLBL                               I 15
C 11 LAST ***** MSTOP                             I 16
C 12 LIST NOLIST MLIST                              I 17
C 13 NEWB ***** NROUT                              I 18
C 14 REFE NOFEFE MREF                              I 19
C 15 SKIP ***** MSKP                               I 20
C 16 STOP ***** MSTOP                             I 21
C NOTE DIFFERENCE BETWEEN MSTOP=-1, GENERATED      I 22
C BY A *STOP CARD, AND MSTOP=+1, GENERATED BY      I 23

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AN ENDFILE ON THE INPUT TAPE (IN SUBR. READER) I 24
C 17 SERI NOSERI MSER                               I 25
C 18 RIGH NORIGH MRIT                               I 26
C 19 LEFT NOLEFT MRIT                               I 27
C 20 COLU NOCOLU JUST                               I 28
C 21 PRIN NOPRIN KPRIN                             I 29
C 22 WRIT NOWRIT NOPRIN                           I 30
C                                                     I 31
COMMON                                               I 32
1   JINT(1600)   ,JOB=BU)   ,KBUFF(80)           I 33
2   ,LDEF(3000) ,LREF=1000                          I 34
DIMENSION KIM(80,20)                                I 35
EQUIVALENCE (JINT,KIM)                              I 36
C                                                     I 37
COMMON /LARGE/   NWORDS   ,IOUT(1326)            I 38
C                                                     I 39
COMMON /MISC/                                         I 40
1   ICOL          ,IFIM          ,IPASS          ,ISTAR         I 41
2   ,JCOL         ,JMAX          ,KILI(4)        ,KOL73(3)      I 42
3   ,L772         ,LAST          ,LCPY          ,LDOS(10)      I 43
4   ,LFIR         ,LQUAL        ,MEOF          ,MILDC         I 44
5   ,MLGC         ,MP2          ,MTRAN         ,NBLC          I 45
6   ,NCD          ,NDE-         ,NDOS         ,NIMS          I 46
7   ,NPAR         ,NPUN         ,NREC         ,NREF          I 47
8   ,NRT1         ,NRT2         ,NTEMP(5)      ,NXED          I 48
9   ,NTRAN        ,NEND(13)    ,MPUN         ,MPRIN         I 49
EQUIVALENCE (KILI(1),KCLASS) , (KILI(2),JTYPE)     I 50
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)         I 51
C                                                     I 52
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)      I 53
C                                                     I 54
COMMON /CONTDY/ NKTRL,KTRL(4,25)                   I 55
C                                                     I 56
COMMON /MOL2/ KBL2,KLR2,KLP2,KRP2,KERM            I 57
C                                                     I 58
COMMON /INIT/ LINE,MPAGE,NPAGE,KJDE                I 59
C                                                     I 60
COMMON /KSTCOM/ NKST,KST(13,65)                    I 61
C                                                     I 62
COMMON /CHOICE/                                     I 63
1   KB15          ,KPUN          ,MCOL          ,MCOM          I 64
2   ,MEX          ,KD79          ,MLBL          ,MSTOP        I 65
3   ,MLIST        ,NROUT        ,MREF          ,MSKP         I 66
4   ,KD15        ,MSEB          ,MRIT          ,JUST         I 67
5   ,KPRIN       ,NOPT          ,              ,              I 68
C                                                     I 69
C ISTAR=-1                                           I 70
I=14                                                 I 71
JSW=0                                               I 72
JL=JMAX-1                                           I 73
DO 30 JB=2,JL                                       I 74
IF (JINT(JB)-KBL) 10,30,10                          I 75
10 IF (JINT(JB)-KABC(1)) 50,20,50                  I 76
20 I=I+1                                             I 77
IF (I-16) 30,40,40                                  I 78
30 CONTINUE                                          I 79
   ISTAR=1                                           I 80
   RETURN                                             I 81
C                                                     I 82
40 JSW=1                                             I 83
   JB=JB+1                                           I 84
C                                                     I 85

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50 DO 90 J=1,NKTRL	I	87	MREF=0	I	150
I=0	I	88	MSER=-1	I	151
DO 80 JCOL=JB,JMAX	I	89	MRIT=0	I	152
IF (JINT(JCOL)-KBL) 60,80,60	I	90	KPRIN=1	I	153
60 I=I+1	I	91	MPRIN=1	I	154
IF (JINT(JCOL)-KTRL(I,J)) 90,70,90	I	92	JUST=7	I	155
70 IF (I-4) 80,110,110	I	93	RETURN	I	156
80 CONTINUE	I	94	C 230 MREF=-1	REFE	I 157
90 CONTINUE	I	95	MLIST=-1	I	158
100 ISTAR=1	I	96	RETURN	I	159
RETURN	I	97	C 240 MSKP=-1	SKIP	I 160
C	I	98	RETURN	I	161
C EXECUTE CONTROL STATEMENT	I	99	C 250 MSER=-1	SERI	I 162
C	I	100	RETURN	I	163
110 NREC=NREC-1	I	101	C 260 MRIT=-1	RIGH	I 164
C	I	102	RETURN	I	165
IF (JSW) 120,130,120	I	103	C 270 KPRIN=1	PRIN	I 166
C	I	104	MPRIN=1	I	167
120 GO TO (300,100,100,100,100,310,320,330,340,350,100,360,100,370,100	I	105	MLIST=-1	I	168
1,100,380,390,400,410,420,280,430),J	I	106	RETURN	I	169
130 GO TO (450,450,450,450,450,150,160,170,180,190,200,210,220,230,240	I	107	C	I	170
1,200,250,260,390,440,270,140,290),J	I	108	C 270 KPRIN=1	I	171
C	I	109	MPRIN=1	I	172
C*****WRITE USER'S GUIDE AT BEGINNING OF RUN*****	I	110	MLIST=-1	I	173
C	I	111	RETURN	I	174
C	I	112	C	I	175
C	I	113	C	I	176
140 NOPT=1	I	114	C 280 NOPT=0	NOWRIT	I 177
RETURN	I	115	RETURN	I	178
C	I	116	290 GO TO 100	I	179
150 MPUN=-1	I	117	C	I	180
KPUN=-1	I	118	300 K815=0	NOBASE	I 181
RETURN	I	119	RETURN	I	182
C	I	120	C	I	183
160 MCOL=-1	I	121	310 MPUN=0	NOCARD	I 184
RETURN	I	122	KPUN=0	I	185
C	I	123	RETURN	I	186
170 MCOM=-1	I	124	C	I	187
RETURN	I	125	320 MCOL=0	NOCOLL	I 188
C	I	126	RETURN	I	189
180 MEX=-1	I	127	C	I	190
RETURN	I	128	330 MCOM=0	NOCOMM	I 191
C	I	129	RETURN	I	192
190 MLBL=-1	I	130	C	I	193
RETURN	I	131	340 MEX=0	NOEXEM	I 194
C	I	132	RETURN	I	195
200 MSTOP=-1	I	133	C	I	196
RETURN	I	134	350 MLBL=0	NOLABE	I 197
C	I	135	RETURN	I	198
210 MLIST=-1	I	136	C	I	199
RETURN	I	137	360 MLIST=0	NOLIST	I 200
C	I	138	C	I	201
220 NROUT=1	I	139	370 MREF=0	NOREFE/NOLIST	I 202
K815=0	I	140	RETURN	I	203
KD15=1	I	141	C	I	204
KD79=1	I	142	380 MSER=0	NOSERI	I 205
MCOL=-1	I	143	RETURN	I	206
MCOM=-1	I	144	C	I	207
MEX=0	I	145	390 MRIT=0	NORIGHT,LEFT	I 208
MLBL=0	I	146	RETURN	I	209
MLIST=-1	I	147	C	I	210
MPUN=-1	I	148	C	I	211
KPUN=-1	I	149	C	I	212
				NOLEFT	

400	MRIT=1	I	213	COMMON /LARGE/	NWORDS	,IOUT(1326)	J	17
	RETURN	I	214				J	18
C		I	215	COMMON /MISC/			J	19
C	NOCOLU	I	216	1	,ICOL	,IFIR	,IPASS	,ISTAR
410	JUST=0	I	217	2	,JCOL	,JMAX	,KILI(4)	,KOL7(3)
	RETURN	I	218	3	,L772	,LAST	,LCPY	,LDOS(10)
C		I	219	4	,LFIR	,LQUAL	,MEOF	,MILDO
C	NOPRIN	I	220	5	,MLGC	,MP2	,MTRAN	,NBLC
420	MPRIN=0	I	221	6	,NCD	,NDEF	,NDOS	,NINS
	KPRIN=0	I	222	7	,NPAR	,NPUN	,NREC	,NREF
	MLIST=0	I	223	8	,NRT1	,NRT2	,NTEMP(5)	,NXEQ
	RETURN	I	224	9	,NTRAN	,KEND(3)	,MPUN	,MPRIN
C		I	225			EQUIVALENCE (KILI(1),KLASS) :	(KILI(2),JTYPE)	
430	GO TO 100	I	226			EQUIVALENCE (KILI(3),L15) :	(KILI(4),IMAX)	
C		I	227	C				
C	GET NUMBER FOLLOWING (=) SIGN.	I	228	COMMON /ALPHA/	KBL,KDIG(10),KABC(26),KSPK(12)			
C		I	229					
440	CONTINUE	I	230	COMMON /CONTDY/	NKTRL,KTRL(4,25)			
450	JAVB=JCOL	I	231					
	DO 460 JCOL=JAVB,JMAX	I	232	COMMON /HOLZ/	KBL2,KLR2,KLP2,KRP2,KERM			
	IF (JINT(JCOL)=KSPK(1)) 460,470,460	I	233					
460	CONTINUE	I	234	COMMON /INIT/	LINE,MPAGE,NPAGE,KODE			
	GO TO 480	I	235					
470	JCOL=JCOL+1	I	236	COMMON /KSTCOM/	NKST,KST(13,65)			
	CALL RSTAT	I	237					
	IF (L772) 500,480,500	I	238	C				
480	IF (J=1) 490,520,490	I	239	COMMON /CHOICE/				
490	L772=1	I	240	1	,KB15	,KPUN	,MCOL	,MCOM
500	IF (J=20) 510,560,510	I	241	2	,MEX	,KD79	,MLBL	,MSTOP
510	GO TO (520,530,530,540,550),J	I	242	3	,MLIST	,NR0UT	,MREF	,MSKP
	BASE	I	243	4	,KD15	,MSER	,MRIT	,JUST
C		I	244	5	,KPRIN	,NOPT		
520	KB15=L772	I	245					
	RETURN	I	246	C				
C	IDIN/IDST	I	247	DIMENSION LFT(7)				
530	KD79=L772	I	248	DATA LFT/1HF,1MO,1HR,1HM,1MA,1HT,1H(/				
	RETURN	I	249					
C	ROUT	I	250	JCOL=6				
540	NR0UT=L772	I	251	N=0				
	RETURN	I	252	C	CHECK FOR A FORMAT STATEMENT.			
C	STAT	I	253	10 N=N+1				
550	KD15=L772	I	254	20 JCOL=JCOL+1				
	RETURN	I	255	IF (JINT(JCOL),NE,LFT(N)) GO TO 30				
C	COLU	I	256	IF (N,NE,7) GO TO 10				
560	JUST=L772	I	257	GO TO 110				
	IF (JUST,LT,7) JUST=7	I	258	30 IF (JINT(JCOL),EQ,KBL) GO TO 20				
	RETURN	I	259-					
	END	J	1					
	SUBROUTINE HOLSCN	J	2					
C	THIS SUBROUTINE SCANS ALL FORTRAN CARDS FOR FIELDS OF HOLLERITH-	J	3					
C	TYPE CONSTANTS. IN THESE FIELDS,	J	4					
C	CHARACTERS ARE REPLACED WITH EQUIVALENT CHARACTERS WHICH WILL NOT	J	5					
C	BE TREATED BY ANALYSIS ROUTINES.	J	6					
C	THE SEARCH IS MADE BY CHECKING FOR PATTERNS -SNNL-, WHERE S IS A	J	7					
C	SPECIAL CHARACTER, NNN IS A DECIMAL NUMBER, AND L IS THE LETTER H,	J	8					
C	L, OR R. IN ADDITION, FOR FORMAT STATEMENTS ONLY, IT ACCEPTS THE	J	9					
C	PATTERN SNNXNNNL, THE RESULT OF A MISSING -= AFTER X.	J	10					
	COMMON	J	11					
	1 JINT(1600) ,JOB(80) ,KBUFF(80)	J	12					
	2 ,LDEF(3000) ,LREF(1000)	J	13					
	DIMENSION KIM(80,20)	J	14					
	EQUIVALENCE(JINT,KIM)	J	15					
C		J	16					

C	*****	J	80	C	CHANGE ALL CHARACTERS BETWEEN *S OR *S	J	143
	DO 50 J=1,11	J	81		KPARAM=JINT(JCOL)	J	144
	IF (IT,EQ,KSPK(J)) GO TO 70	J	82	170	IF (JCOL,EQ,JMAX) RETURN	J	145
50	CONTINUE	J	83		JCOL=JCOL+1	J	146
60	CONTINUE	J	84		IF (JINT(JCOL),EQ,KPARAM) GO TO 180	J	147
	RETURN	J	85		JINT(JCOL)=JINT(JCOL)+1	J	148
C	FOUND ONE. IS IT THE FIRST...	J	86		GO TO 170	J	149
70	IF (IFIR,NE,12) GO TO 80	J	87	180	IF (JINT(JCOL+1),NE,KPARAM) GO TO 190	J	150
C	YES	J	88		JCOL=JCOL+1	J	151
	IFIR=J	J	89		GO TO 170	J	152
	LFIR=JCOL	J	90	C	LOOK FOR FOLLOWING NUMBER	J	153
C	LOOK FOR FOLLOWING NUMBER.	J	91	190	IF (JCOL,EQ,JMAX) RETURN	J	154
80	IF (JCOL,EQ,JMAX) RETURN	J	92		JCOL=JCOL+1	J	155
	JCOL=JCOL+1	J	93		CALL RSTAT	J	156
	CALL RSTAT	J	94	C	IF NOT A NUMBER, START AGAIN	J	157
C	REPEAT IF NO NUMBER.	J	95		IF (L772,EQ,0) GO TO 130	J	158
	IF (L772,EQ,0) GO TO 40	J	96	C	NUMBER FOUND. LOOK AT NEXT CHARACTER.	J	159
	IT=JINT(JCOL)	J	97		IT=JINT(JCOL)	J	160
C	IS IT -H-, -L-, OR -R-	J	98	C	IS IT -H-	J	161
	IF (IT,NE,KABC(8),AND,IT,NE,KABC(12),AND,IT,NE,KABC(18)) GO TO 40	J	99		IF (IT,EQ,KABC(8)) GO TO 210	J	162
C	FIND LIMITS OF HOLLERITH FIELD.	J	100	C	IF NOT -X-, START AGAIN.	J	163
	I=JCOL+1	J	101		IF (IT,NE,KABC(24)) GO TO 130	J	164
	JCOL=JCOL+L772	J	102	C	X FOUND. LOOK AT NEXT.	J	165
C	L772 IS THE LENGTH OF THE FIELD, AS FOUND BY RSTAT	J	103	200	IF (JCOL,EQ,JMAX) RETURN	J	166
C	CHECK FOR CASE OF HOLLERITH BLANKS SPILLING OFF	J	104		JCOL=JCOL+1	J	167
C	END OF CARD, E.G. I=6HXXXX	J	105		IF (JINT(JCOL),EQ,KBL) GO TO 200	J	168
	IF (JCOL,LE,JMAX) GO TO 90	J	106		IT=JINT(JCOL)	J	169
C	REPLACE CURRENT END CARD MARK.	J	107	C	IS IT --	J	170
	JINT(JMAX+1)=KBL	J	108		IF (IT,EQ,KSPK(8),OR,IT,EQ,KSPK(12)) GO TO 160	J	171
C	AND SET NEW ONE	J	109	C	IS IT -) OR --	J	172
	JMAX=JCOL	J	110		IF (IT,EQ,KSPK(2)) GO TO 190	J	173
	JINT(JMAX+1)=KERM	J	111		IF (IT,EQ,KSPK(5)) GO TO 190	J	174
C	CHANGE ALL CHARACTERS IN HOLLERITH FIELD.	J	112	C	OTHERWISE, BACKSPACE ONE CHARACTER	J	175
90	DO 100 J=I,JCOL	J	113		JCOL=JCOL-1	J	176
	JINT(J)=JINT(J)+1	J	114	C	AND ISSUE DIAGNOSTIC	J	177
100	CONTINUE	J	115		IF (IGOOF,EQ,0) CALL DIAGNO (25)	J	178
	GO TO 40	J	116		IGOOF=1	J	179
		J	117		GO TO 120	J	180
C	*****	J	118	C	HOLLERITH FOUND. FIND LIMITS OF FIELD.	J	181
C	*****	J	119		210	J	182
C	PROCESS FOMHAT STATEMENTS.	J	120		I=JCOL+1	J	183
C	*****	J	121		JCOL=JCOL+L772	J	184
C	*****	J	122		IF (JCOL,LE,JMAX) GO TO 220	J	185
C	*****	J	123		JINT(JMAX+1)=KBL	J	186
110	IGOOF=0	J	124		JMAX=JCOL	J	187
	IFIR=3	J	125		JINT(JMAX+1)=KERM	J	188
	LFIR=JCOL	J	126	220	DO 230 J=I,JCOL	J	189
	GO TO 160	J	127		JINT(J)=JINT(J)+1	J	190
C		J	128	230	CONTINUE	J	191
120	JCOL=JCOL+1	J	129		GO TO 120	J	192
C	LOOK FOR SPECIAL CHARACTER	J	130		END	J	193-
130	IF (JCOL,GT,JMAX) RETURN	J	131		SUBROUTINE RSTAT	K	1
	I=JCOL	J	132	C		K	2
	DO 150 JCOL=I,JMAX	J	133	C	THIS SUBROUTINE GETS THE STATEMENT NUMBER REFERENCED AT LOCATION	K	3
	IT=JINT(JCOL)	J	134	C	JCOL AND PUTS IT IN L772. JCOL IS LEFT SET AT THE LOCATION OF THE	K	4
	DO 140 J=1,12	J	135	C	NEXT SYMBOL ON JINT.	K	5
	IF (IT,EQ,KSPK(J)) GO TO 160	J	136	C		K	6
140	CONTINUE	J	137	C	COMMON	K	7
150	CONTINUE	J	138		1 JINT(1600) ,JOB(80) ,KBUFF(80)	K	8
	RETURN	J	139		2 ,LDEF(3000) ,LREF(1000)	K	9
C		J	140		DIMENSION KIM(80,20)	K	10
C	SKIP IF NOT * OR "	J	141		EQUIVALENCE(JINT,KIM)	K	11
160	IF (JINT(JCOL),NE,KSPK(8),AND,JINT(JCOL),NE,KSPK(12)) GO TO 190	J	142	C		K	12

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COMMON /LARGE/      NWORDS      +IOUT(1326)      K 13
C
COMMON /MISC/
1  ICOL              +IFIR          +IPASS          +ISTAR          K 14
2  +JCOL            +JMAX          +KILI(4)       +KOL73(3)      K 15
3  +L772           +LAST          +LCPY          +LDOS(10)      K 16
4  +LFIR           +LQUAL        +MEOF          +MILDO         K 17
5  +MLGC           +MP2          +MTRAN        +NBLC          K 18
6  +NCD            +NDEF         +NDOS         +NINS          K 19
7  +NPAR           +NPUN        +NREC         +NREF          K 20
8  +NRT1          +NRT2        +NTEMP(5)     +NXEQ         K 21
9  +NTRAN          +KEND(3)     +MPUN         +MPRIN        K 22
EQUIVALENCE (KILI(1),KCLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , ( KILI(4),IMAX)      K 23
C
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)    K 24
C
COMMON /CONTDY/ NKTRL,KTRL(4,25)                 K 25
C
COMMON /HDL2/ KBL2,KLR2,KLP2,KRP2,KERM          K 26
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE             K 27
C
COMMON /KSTCOM/ NKST,KST(13,65)                 K 28
C
COMMON /CHOICE/
1  KB15             +KPUN          +MCOL          +MCOM          K 29
2  +MEX            +KD79         +MLBL          +MSTOP        K 30
3  +MLIST          +NR0UT        +MREF          +MSKP         K 31
4  +KD15          +MSER         +MRIT         +JUST         K 32
5  +KPRIN         +NOPT
C
L772=0
IF (JCOL-JMAX) 20,20,10
10 JCOL=JMAX
RETURN
C
20 I=JCOL
DO 60 JCOL=I,JMAX
IF (JINT(JCOL)-KBL) 30,60,30
30 DO 40 J=1,10
IF (JINT(JCOL)-KDIG(J)) 40,50,40
40 CONTINUE
RETURN
C
50 L772=L772+10+J-1
60 CONTINUE
JCOL=JMAX
LCPY=KERM
MEOF=0
RETURN
END
SUBROUTINE DIAGNO (N)
L 1
C
THIS ROUTINE WRITES THE GENERAL DIAGNOSTICS FOR TIDY.
L 2
C
COMMON
L 3
1  JINT(1600)      +JOB(80)      +KBUFF(80)
L 4
2  +LDEF(3000)    +LREF(1000)
L 5
DIMENSION KIM(80,20)
L 6
EQUIVALENCE (JINT,KIM)
L 7
C
L 8
L 9
L 10

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COMMON /LARGE/      NWORDS      +IOUT(1326)      L 11
C
COMMON /MISC/
1  ICOL              +IFIR          +IPASS          +ISTAR          L 12
2  +JCOL            +JMAX          +KILI(4)       +KOL73(3)      L 13
3  +L772           +LAST          +LCPY          +LDOS(10)      L 14
4  +LFIR           +LQUAL        +MEOF          +MILDO         L 15
5  +MLGC           +MP2          +MTRAN        +NBLC          L 16
6  +NCD            +NDEF         +NDOS         +NINS          L 17
7  +NPAR           +NPUN        +NREC         +NREF          L 18
8  +NRT1          +NRT2        +NTEMP(5)     +NXEQ         L 19
9  +NTRAN          +KEND(3)     +MPUN         +MPRIN        L 20
EQUIVALENCE (KILI(1),KCLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , ( KILI(4),IMAX)      L 21
C
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)    L 22
C
COMMON /CONTDY/ NKTRL,KTRL(4,25)                 L 23
C
COMMON /HDL2/ KBL2,KLR2,KLP2,KRP2,KERM          L 24
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE             L 25
C
COMMON /KSTCOM/ NKST,KST(13,65)                 L 26
C
COMMON /CHOICE/
1  KB15             +KPUN          +MCOL          +MCOM          L 27
2  +MEX            +KD79         +MLBL          +MSTOP        L 28
3  +MLIST          +NR0UT        +MREF          +MSKP         L 29
4  +KD15          +MSER         +MRIT         +JUST         L 30
5  +KPRIN         +NOPT
L 31
C
***
L 32
1 THE ABOVE STATEMENT IS ILLEGAL AND HAS BEEN DELETED.
L 33
2 THE ABOVE STATEMENT HAS A MISSING RIGHT PARENTHESIS.
L 34
3 THE ABOVE STATEMENT HAS AN EXCESS RIGHT PARENTHESIS.
L 35
4 THE ABOVE STATEMENT INCORRECTLY TERMINATES A DO LOOP.
L 36
5 THE ABOVE STATEMENT CANNOT BE REACHED BY THE PROGRAM.
L 37
6 STATEMENT NUMBER TABLE FULL.  RENUMBER PASS DELETED.
L 38
7 REFERENCE NUMBER TABLE FULL.  RENUMBER PASS DELETED.
L 39
8 THE ABOVE STATEMENT IS OBSOLETE AND IS DELETED.
L 40
9 ABOVE STATEMENT HAS AN ILLEGAL FIRST SPECIAL CHARACTER.
L 41
10 ILLEGAL DATA, FUNCTION, OR SUBROUTINE STATEMENT.
L 42
11 THE ABOVE COMMON OR DATA STATEMENT IS MISSING A (/).
L 43
12 THE ABOVE CONTINUE STATEMENT IS REDUNDANT AND IS DELETED.
L 44
13 THE ABOVE DIMENSION STATEMENT IS NOT COMPLETE.
L 45
14 W A R N I N G .  THIS STATEMENT SHOULD FOLLOW AN END CARD.
L 46
15 THE ABOVE DO STATEMENT HAS AN INVALID TERMINAL STATEMENT.
L 47
16 W A R N I N G .  UNSATISFIED DO LOOPS.
L 48
17 UNNUMBERED OR INVALID FORMAT STATEMENT DELETED.
L 49
18 WARNING.  ABOVE STATEMENT IS POOR PROGRAMMING PRACTICE.
L 50
19 ABOVE GO TO STATEMENT IS ILLEGAL.
L 51
20 ILLEGAL ARITHMETIC IF STATEMENT.  IF (ARITH) 1,2,3
L 52
21 ABOVE NAMELIST STATEMENT MISSING (/).
L 53
22 ILLEGAL READ, WRITE , OR PUNCH STATEMENT.
L 54
23 ILLEGAL READ (12) LIST, OR WRITE (12) LIST, STATEMENT.
L 55
24 DO LOOP TABLE FULL.  RENUMBER PASS DELETED.
L 56
25 W A R N I N G .  COMMA FOLLOWING X MISSING IN ABOVE FORMAT.
L 57
26 TIDY CANNOT PROCESS THIS CLASS OF PROGRAM.  (COPY EXECUTED.)
L 58
L 59
L 60
L 61
L 62
L 63
L 64
L 65
L 66
L 67
L 68
L 69
L 70
L 71
L 72
L 73

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C 27 WARNING. ABOVE DO-LOOP TERMINUS PREVIOUSLY REFERENCED.
C ***
C
10 J=N
IF (J) 30,30,20
20 IF (J=28) 40,30,30
30 J=1
40 NMSG=NMSG+1
IF (MLIST.NE.-1) GO TO 50
WRITE (6,60) NMSG,(MSG(I,J),I=1,10)
CALL PAGE (1)
RETURN
50 I=-(JMAX-7)/66+4
CALL PAGE (1)
WRITE (6,70) (JINT(I),I=1,JMAX)
WRITE (6,60) NMSG,(MSG(I,J),I=1,10)
WRITE (6,80) NREC,KBUFF
WRITE (6,90)
RETURN
C
60 FORMAT (8H ***** (I3,5H) ***10 (A6),6H*****20X,10H***** )
70 FORMAT (7X,72A1,19 (/12X,1MX,66A1))
80 FORMAT (1X,I4,2X,80A1)
90 FORMAT (1H0)
END
SUBROUTINE DLIST (MERR)
C
C THIS SUBROUTINE UPDATES THE DEFINED STATEMENT NUMBER LIST, LDEF,
C BY ADDING THE STATEMENT NUMBER IN L15, IF IT IS UNIQUE.
C
COMMON
1 JINT(1600) ,JOB(80) ,KBUFF(80)
2 ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE (JINT,KIM)
C
COMMON /LARGE/ NWORDS ,IOUT(1326)
C
COMMON /MISC/
1 ICOL ,IFIR ,IPASS ,ISTAR
2 ,JCOL ,JMAX ,KILI(4) ,KOL73(3)
3 ,L772 ,LAST ,LCPY ,LDOS(10)
4 ,LFIR ,LQUAL ,MEOF ,MILDO
5 ,MLGC ,MP2 ,MTRAN ,NBLC
6 ,NCD ,NDEF ,NDOS ,NINS
7 ,NPAR ,NPUN ,NREC ,NREF
8 ,NRTI ,NRT2 ,NTEMP(5) ,NXEQ
9 ,NTRAN ,KEND(3) ,MPUN ,MPRIN
EQUIVALENCE (KILI(1),KLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)
C
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)
C
COMMON /CONTDY/ NKTRL,KTRL(4,25)
C
REAL*8 MSG
C
COMMON /DIOMSG/ MSG(10,30),NMSG
C
COMMON /MOL2/ KBL2,KLR2,KLP2,KRP2,KERM
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE

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L 74
L 75
L 76
L 77
L 78
L 79
L 80
L 81
L 82
L 83
L 84
L 85
L 86
L 87
L 88
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L 90
L 91
L 92
L 93
L 94
L 95
L 96
L 97
L 98
L 99-
M 1
M 2
M 3
M 4
M 5
M 6
M 7
M 8
M 9
M 10
M 11
M 12
M 13
M 14
M 15
M 16
M 17
M 18
M 19
M 20
M 21
M 22
M 23
M 24
M 25
M 26
M 27
M 28
M 29
M 30
M 31
M 32
M 33
M 34
M 35
M 36
M 37

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C COMMON /KSTCOM/ NKST,KST(13,65)
C
COMMON /CHOICE/
1 KB15 ,KPUN ,MCOL ,MCOM
2 ,MEX ,KD79 ,MLBL ,MSTOP
3 ,MLIST ,NROUT ,MREF ,MSKP
4 ,KD15 ,MSER ,MRIT ,JUST
5 ,KPRIN ,NOPT
C
MILDO = -1 IF DO-TERMINATOR ALLOWED BUT NON-STANDARD
MILDO = 0 IF DO-TERMINATOR ALLOWED
MILDO = +1 IF DO-TERMINATOR FORBIDDEN
C
SET UP INITIAL CONDITIONS.
C
50 MERR=0
IF (KCLASS=4) 60,20,20
20 IF (L15) 70,30,70
30 IF (NTRAN) 40,50,40
40 CALL DIAGNO (5)
C
DLIST EXITS HERE.
C
50 MILDO=0
NXEQ=NXEQ+1
60 RETURN
C
IF THIS IS FIRST EXECUTABLE, ADD TO REFERENCE LIST.
C
70 IF (NXEQ) 90,80,90
80 I=L772
L772=L15
CALL RLIST
L772=I
C
90 IF (NDEF) 50,120,100
C
SCAN FOR DUPLICATE STATEMENT NUMBERS.
C
100 DO 110 I=1,NDEF
IF (LDEF(I)-L15) 110,240,110
110 CONTINUE
120 NDEF=NDEF+1
IF (NDEF-1500) 130,130,250
130 LDEF(NDEF)=L15
LDEF(NDEF+1500)=NDEF
C
SCAN FOR POSSIBLE DO-LOOP TERMINATIONS.
C
IF (NDOS) 50,50,140
140 I=NDOS
IF (MILDO) 170,150,170
150 IF (LDOS(I)-L15) 180,160,180
160 NDOS=NDOS-1
GO TO 50
C
170 IF (LDOS(I)-L15) 180,190,180
180 I=I-1
IF (I) 140,50,170
190 CALL DIAGNO (4)
NDOS=NDOS-1

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M 38
M 39
M 40
M 41
M 42
M 43
M 44
M 45
M 46
M 47
M 48
M 49
M 50
M 51
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M 54
M 55
M 56
M 57
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M 92
M 93
M 94
M 95
M 96
M 97
M 98
M 99
M 100

```

IF (MILDO) 50,200,220	M	101	COMMON /CONTDY/ NKTRL,KTRL(4,25)	N	30
200 NMSG=NMSG+1	M	102	C	N	31
WRITE (6,270) NMSG,I,NDOS	M	103	COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM	N	32
CALL PAGE (1)	M	104	C	N	33
GO TO 220	M	105	COMMON /INIT/ LINE,MPAGE,NPAGE,KODE	N	34
C	M	106	C	N	35
RESORT DO-LOOP TERMINAL LIST AFTER DELETIONS.	M	107	COMMON /KSTCOM/ NKST,KST(13,65)	N	36
C	M	108	C	N	37
210 LDOS(I-1)=LDOS(I)	M	109	COMMON /CHOICE/	N	38
220 I=I+1	M	110	1 KBL5 ,KPUN ,MCOL ,MCOM	N	39
IF (I-NDOS) 210,210,230	M	111	2 ,MEX ,KD79 ,MLBL ,MSTJP	N	40
230 NDOS=NDOS-1	M	112	3 ,MLIST ,NRROUT ,MREF ,MSKP	N	41
MPUN=0	M	113	4 ,KD15 ,MSER ,MRIT ,JUST	N	42
MERR=-1	M	114	5 ,KPRIN ,NOPT	N	43
GO TO 50	M	115	C	N	44
C	M	116	C	N	45
ERROR DIAGNOSTICS.	M	117	C	N	46
C	M	118	C	N	47
240 NMSG=NMSG+1	M	119	SET INITIAL VALUES.	N	48
WRITE (6,280) NMSG,L15,LDEF(I+1500)	M	120	10 CALL IOSYS1 (0,0,0)	N	48
CALL PAGE (1)	M	121	CALL IOSYS2 (0,0,0)	N	49
GO TO 260	M	122	NRT2=0	N	50
250 CALL DIAGNO (6)	M	123	NDEF=0	N	51
NDEF=-1	M	124	KLASS=1	N	52
MP2=0	M	125	ITYPE=0	N	53
260 MPUN=0	M	126	L15=0	N	54
MERR=-1	M	127	IF (MP2) 20,40,20	N	55
GO TO 50	M	128	C	N	56
C	M	129	C	N	57
270 FORMAT (8H *** (,13,19H) *** DO LOOP LEVEL,12,23H TERMINATES WITH	M	130	C	N	58
1LF LEVEL,12,22H IS IN EFFECT. ***)	M	131	20 IMAX=JMAX	N	59
280 FORMAT (8H *** (,13,22H) *** STATEMENT NUMBER,15,25H DUPLICATES	M	132	KLASS=2	N	60
1THE NUMBER AT,14,1H,.8X,3H***)	M	133	CALL IOSYS1 (2,KILI,4)	N	61
END	M	134	CALL IOSYS1 (2,JINT,JMAX)	N	62
SUBROUTINE NOPRO (IFLAG)	N	1	NRT1=1	N	63
C	N	2	KLASS=3	N	64
THIS SUBROUTINE EXECUTES A HIGH-SPEED SEARCH FOR AN END STATEMENT.	N	3	IF (JMAX,LE,72) GO TO 40	N	65
C	N	4	CALL PAGE (-2)	N	66
IF MP2 IS ON, CARD IMAGES ARE WRITTEN ON TAPE 1 FOR USE BY PASS2.	N	5	WRITE (6,180)	N	67
C	N	6	GO TO 40	N	68
NO INTERNAL PROCESSING IS DONE ON THE STATEMENTS.	N	7	C	N	69
C	N	8	C	N	70
COMMON	N	9	READ AND COPY CARD IMAGES BY WAY OF KBUFF.	N	71
1 JINT(1600) ,JOB(80) ,KBUFF(80)	N	10	C	N	72
2 ,LDEF(3000) ,LREF(1000)	N	11	30 CALL READER	N	72
DIMENSION KIM(80,20)	N	12	40 NREC=NREC+1	N	73
EQUIVALENCE (JINT,KIM)	N	13	C	N	74
C	N	14	C	N	75
COMMON /LARGE/ NWORDS ,IOUT(1326)	N	15	LOOK FOR LAST NON-BLANK CHARACTER ON CARD.	N	76
C	N	16	C	N	77
COMMON /MISC/	N	17	I=72	N	77
1 ,ICOL ,IFIR ,IPASS ,ISTAR	N	18	50 IF (KBUFF(I)-KBL) 70,60,70	N	78
2 ,JCOL ,JMAX ,KILI(4) ,KOL73(3)	N	19	60 I=I-1	N	79
3 ,L772 ,LAST ,LCPY ,LDOS(10)	N	20	IF (I-7) 50,70,70	N	80
4 ,LFIR ,LQUAL ,MEOF ,MILDO	N	21	70 IMAX=I	N	81
5 ,MLGC ,MP2 ,MTRAN ,NBLC	N	22	C	N	82
6 ,NCD ,NDEF ,NINS ,NREF	N	23	C	N	83
7 ,NPAR ,NPUN ,NREC ,NREF	N	24	C	N	84
8 ,NRT1 ,NRT2 ,NTEMP(5) ,NXEQ	N	25	LOOK FOR END STATEMENT.	N	85
9 ,NTRAN ,KEND(J) ,MPUN ,MPRIN	N	26	J=3	N	85
EQUIVALENCE (KILI(1),KLASS) + (KILI(2),JTYPE)	N	27	DO 100 I=7,IMAX	N	86
EQUIVALENCE (KILI(3),L15) + (KILI(4),IMAX)	N	28	IF (KBUFF(I)-KBL) 80,100,80	N	87
C	N	29	80 IF (KBUFF(I)-KEND(J)) 110,90,110	N	88
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)	N	29	90 J=J-1	N	89
C	N	29	IF (J) 100,130,100	N	90
C	N	29	100 CONTINUE	N	91
	N	29	C	N	92

```

C WRITE OUT CARD IMAGE FOR PASS2.
C
110 IF (MP2) 120,30,120
120 CALL IOSYS1 (2,KILI,4)
CALL IOSYS1 (2,KBUFF,IMAX)
NRT1=NRT1+1
GO TO 30

C IF IFLAG IS NON-ZERO, REQUIRE THAT "END" BE
C FOLLOWED BY A BLANK.
C LAST CHARACTERS ON THE CARD.
130 IF (IFLAG) 140,150,140
140 IF (KBUFF(I+1)=KBL) 110,150,110

C WRITE OUT END STATEMENT.
C
150 IF (MP2) 160,170,160
160 KCLASS=8
CALL IOSYS1 (2,KILI,4)
CALL IOSYS1 (2,KBUFF,IMAX)
NRT1=NRT1+1
CALL IOSYS1 (1,0,0)

C LOAD BUFFER, KBUFF, BEFORE EXITING.
C
170 CALL HEADER
RETURN

C 180 FORMAT (99H0* * * * * W A R N I N G * * * * * TIDY MAY
I HAVE CHANGED THE SECOND CARD OF THIS ROUTINE)
END
SUBROUTINE COPY (N)
THIS SUBROUTINE COPYS NON-BLANK CHARACTERS FROM JINT TO IOUT.
C
C === ON ENTRY ===
C N .LT. 0 COPYS UNTIL PARENTHESIS COUNT IS ZERO.
C N .EQ. 0 COPYS ALL REMAINING NON-BLANK DATA FROM JINT TO IOUT.
C N .GT. 0 COPYS N NON-BLANK DATA FROM JINT TO IOUT.
C THE FIRST ITEM INSPECTED IS JINT(JCOL).
C THE FIRST ITEM STORED GOES TO IOUT(ICOL+1).
C
C === ON EXIT ===
C THE LAST ITEM INSPECTED WAS JINT(JCOL-1).
C THE LAST ITEM STORED WENT TO IOUT(ICOL) AND IS IN LCPY.
C
C MEOF .LT. 0 FOR NORMAL EXIT.
C MEOF .EQ. 0 FOR KERM FOUND WHILE COPYING ALL REMAINING DATA.
C OR FOR KERM FOUND BEFORE LEFT PARENTHESIS.
C MEOF .GT. 0 FOR MISSING RIGHT PARENTHESIS, OR FOR MEOF =0 ON
C ENTRY TO COPY.
C
COMMON
1 JINT(1600) *JOB(80) *KBUFF(80)
2 *LDEF(3000) *LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
COMMON /LARGE/ NWORDS *IOUT(1326)
COMMON /MISC/
1 *ICOL *IFIR *IPASS *ISLAR
2 *JCOL *JMAX *KILI(4) *KOL73(3)

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N 121
N 122-
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O 32
U 33

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3 *L772 *LAST *LCPY *LOOS(10) 0 34
4 *LFIR *LQUAL *MEOF *MIL00 0 35
5 *MLGC *MP2 *MTRAN *NBLC 0 36
6 *NCD *NDEF *NDOS *NINS 0 37
7 *NPAR *NPUN *NREC *NREF 0 38
8 *NRT1 *NRT2 *NTEMP(5) *NXEQ 0 39
9 *NTRAN *KEND(3) *MPUN *MPRIN 0 40
EQUIVALENCE (KILI(1),KCLASS) , ( KILI(2),JTYPE) 0 41
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX) 0 42
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12) 0 43
COMMON /CONTDY/ NKTRL,KTRL(4,25) 0 44
COMMON /MOL2/ KBL2,KLR2,KLP2,KRP2,KERM 0 45
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE 0 46
COMMON /KSTCOM/ NKST,KST(13,65) 0 47
COMMON /CHOICE/ 0 48
1 KB15 *KPUN *MCOL *MCOM 0 49
2 *MEX *KD79 *MLBL *MSTOP 0 50
3 *MLIST *NR0UT *MREF *MSKP 0 51
4 *KD15 *MSER *MRIT *JUST 0 52
5 *KPRIN *NOPT 0 53
10 NT=N 0 54
IF (MEOF) 30,20,20 0 55
20 MEOF=1 0 56
LCPY=KERM 0 57
RETURN 0 58
30 IF (JCOL-JMAX) 40,40,20 0 59
40 IF (NT) 150,60,100 0 60
COPY ALL REMAINING NON-BLANK CHARACTERS. 0 61
50 JCOL=JCOL+1 0 62
60 JT=JINT(JCOL) 0 63
IF (JT-KBL) 70,50,70 0 64
70 ICOL=ICOL+1 0 65
IOUT(ICOL)=JT 0 66
IF (JT-KERM) 50,80,50 0 67
80 LCPY=KERM 0 68
ICOL=ICOL-1 0 69
MEOF=0 0 70
RETURN 0 71
COPY --N-- NON-BLANK CHARACTERS. 0 72
90 JCOL=JCOL+1 0 73
100 JT=JINT(JCOL) 0 74
IF (JT-KBL) 110,90,110 0 75
110 ICOL=ICOL+1 0 76
IOUT(ICOL)=JT 0 77
NT=NT-1 0 78
IF (NT) 20,130,120 0 79
120 IF (JT-KERM) 90,80,90 0 80
130 JCOL=JCOL+1 0 81

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      LCPY=JT
      RETURN
C
C   COPY TO PARENTHESIS COUNT OF ZERO.
C   LOOK FOR LEFT PARENTHESIS.
C
140 JCOL=JCOL+1
150 JT=JINT(JCOL)
    IF (JT-KBL) 160,140,160
160 ICOL=ICOL+1
    IOUT(ICOL)=JT
    LCPY=JT
    IF (JT-KSPK(3)) 170,190,170
170 IF (JT-KSPK(5)) 180,270,180
180 IF (JT-KERM) 140,80,140
C
C   HAVE LEFT PARENTHESIS. LOOK FOR PARENTHESIS COUNT OF ZERO.
C
190 NPAR=1
200 JCOL=JCOL+1
    JT=JINT(JCOL)
    IF (JT-KBL) 210,200,210
210 ICOL=ICOL+1
    IOUT(ICOL)=JT
    LCPY=JT
    IF (JT-KSPK(3)) 230,220,230
220 NPAR=NPAR+1
    GO TO 200
230 IF (JT-KSPK(5)) 250,240,250
240 NPAR=NPAR-1
    IF (NPAR) 270,130,200
250 IF (JT-KERM) 200,260,200
260 CALL DIAGNO (2)
    LCPY=KERM
    GO TO 280
270 CALL DIAGNO (3)
280 MEOF=1
    JCOL=JCOL+1
    RETURN
    END
    SUBROUTINE RLST
C
C   THIS SUBROUTINE UPDATES THE REFERENCED STATEMENT NUMBER LIST.
C   L772 CONTAINS THE REFERENCED STATEMENT NUMBER.
C
COMMON
1      JINT(1600)  ,JOB(80)      ,KBUFF(80)
2      ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
C
COMMON /LARGE/      NWORDS      ,IOUT(1326)
C
COMMON /MISC/
1      ICOL      ,IFIR      ,IPASS      ,ISTAR
2      ,JCOL      ,JMAX      ,KILI(4)      ,KOL73(3)
3      ,L772      ,LAST      ,LCPY      ,LDOS(10)
4      ,LFIR      ,LQUAL      ,MEOF      ,MILDO
5      ,MLGC      ,MP2      ,MTRAN      ,NBLC
6      ,NCD      ,NDEF      ,NDGS      ,NINS
7      ,NPAR      ,NPUN      ,NREC      ,NREF
8      ,NRT1      ,NRT2      ,NTEMP(5) ,NXEQ
9      ,NTHAN      ,KEND(J)   ,MPUN      ,MPRIN

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P 2
P 3
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EQUIVALENCE (KILI(1),KLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)
C
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)
C
COMMON /CONTDY/ NKTRL,KTRL(4,25)
C
COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE
C
COMMON /KSTCOM/ NKST,KST(13,65)
C
COMMON /CCHOICE/
1      KB15      ,KPUN      ,MCOL      ,MCOM
2      ,MEX      ,KD79      ,MLBL      ,MSTOP
3      ,MLIST     ,NRROUT     ,MREF      ,MSKP
4      ,KD15      ,MSER      ,MRIT      ,JUST
5      ,KPRIN     ,NOPT
C
10 IF (L772) 30,20,30
20 RETURN
C
30 IF (L772-L15) 60,40,60
40 IF (NXEQ) 90,90,50
C
C   POOR PROGRAMMING PRACTICE.
50 CALL DIAGNO (18)
60 IF (NREF) 90,90,70
70 DO 80 I=1,NREF
    IF (LREF(I)-L772) 80,20,80
80 CONTINUE
C
C   ADD REFERENCED STATEMENT TO TABLE.
C
90 NREF=NREF+1
    IF (NREF-1000) 100,100,110
100 LREF(NREF)=L772
    RETURN
C
C   TABLE FULL
110 CALL DIAGNO (7)
    NREF=-1
    MP2=0
    RETURN
    END
    SUBROUTINE EDIT
C
C   THIS SUBROUTINE EDITS THE DEFINED AND THE REFERENCED STATEMENT
C   NUMBER LIST.
C
(1)   DEFINED STATEMENTS THAT ARE NOT REFERENCED ARE DELETED.
(2)   PSEUDO-STATEMENT NUMBERS OUTSIDE THE RANGE OF RENUMBERED
      DEFINED STATEMENT NUMBERS ARE GENERATED FOR EACH
      REFERENCED STATEMENT WHICH IS NOT DEFINED.
C
COMMON
1      JINT(1600)  ,JOB(80)      ,KBUFF(80)
2      ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
C
COMMON /LARGE/      NWORDS      ,IOUT(1326)

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P 69-
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Q 11
Q 12
Q 13
Q 14
Q 15
Q 16
Q 17

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COMMON /MISC/
1      ICOL          ,IFIR          ,IPASS          ,ISTAR
2      ,JCOL         ,JMAX         ,KILI(4)       ,KOL73(3)
3      ,L772        ,LAST         ,LCPY         ,LDOS(10)
4      ,LFIR        ,LQUAL        ,MEOF         ,MILDO
5      ,MLGC        ,MP2          ,MTRAN        ,NBLC
6      ,NCD         ,NDEF         ,NDOS         ,NINS
7      ,NPAR        ,NPUN         ,NREC         ,NREF
8      ,NRT1        ,NRT2         ,NTEMP(5)    ,NXEQ
9      ,NTRAN        ,KEND(J)      ,MPUN         ,MPRIN

EQUIVALENCE (KILI(1),KCLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)

COMMON /ALPHA/ KBL,KD1G(10),KABC(26),KSPK(12)

COMMON /CONTDY/ NKTRL,KTRL(4,25)

REAL*8 MSG

COMMON /DIOMSG/ MSG(10,30),NMSG

COMMON /HOL2/ KRL2,KLR2,KLP2,KRP2,KERM

COMMON /INIT/ LINE,MPAGE,NPAGE,KODE

COMMON /KSTCOM/ NKST,KST(13,65)

COMMON /CHOICE/
1      ,M15        ,MPUN        ,MCDL         ,MCOM
2      ,M71        ,M174       ,MMLBL       ,MSTOP
3      ,MLIST      ,NROU1     ,MMEF        ,MSKIP
4      ,KD15       ,MSEW      ,MRIT        ,JUST
5      ,KPRIN     ,NOPT

10 IF (NDEF) 20,20,30
20 RETURN

30 IF (NREF) 40,40,50
40 NDEF=0
RETURN

SCAN DEFINED LIST FOR REFERENCES. DELETE NON-REFERENCED
DEFINED STATEMENT NUMBERS.

50 IT=0
DO 60 I=1,NDEF
DO 60 J=1,NREF
IF (LDEF(I)=LREF(J)) 60,70,60
60 CONTINUE
GO TO 80
70 IT=IT+1
LDEF(IT)=LDEF(I)
LDEF(IT+1500)=LDEF(I+1500)
40 CONTINUE

SCAN REFERENCED STATEMENT LIST FOR MISSING DEFINITIONS.

NDEF=IT
IT=0
DO I=1,NDEF

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R 19
R 20
R 21
R 22
R 23
R 24
R 25
R 26
R 27
R 28
R 29
R 30

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C
C
COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE
C
COMMON /KSTCOM/ NKST,KST(13,65)
C
COMMON /CHOICE/
1      KBL5      ,KPUN      ,MCOL      ,MCOM
2      ,MEX      ,KD79      ,MLBL      ,MSTOP
3      ,MLIST     ,NROUT     ,MREF      ,MSKP
4      ,KD15      ,MSEH      ,MRIT      ,JUST
5      ,KPRIN     ,NOPT

C
10 IF (4=NDEF) 30,20,20
20 RETURN

C
30 CALL PAGE (0)
WRITE (6,100)
CALL PAGE (4)
DO 40 I=1,NDEF
40 JINT(I)=I

C
ADDRESS=SORT STATEMENT NUMBERS
C
M=NDEF+1
NR=C
M=M-1
DO 70 I=2,M
J=JINT(I-1)
K=JINT(I)
IF (LDEF(J)-LDEF(K)) 70,70,60
60 JINT(I)=K
JINT(I)=J
NR=-1
70 CONTINUE
IF (NR) 50,80,80

C
WRITE DIRECTORY
C
80 DO 90 I=1,NDEF
NW1=I*KD15+KBL5
N01=LDEF(I)
L01=LDEF(I+1500)
J=JINT(I)
NW2=J*KD15+KBL5
N02=LDEF(J)
L02=LDEF(J+1500)
WRITE (6,110) NW1,N01,L01,N02,L02,NW2
90 CALL PAGE (1)
WRITE (6,120)
CALL PAGE (3)
RETURN

C
100 FORMAT ('3X,26HSTATEMENT NUMBER DIRECTORY/1H0,22X,JHNEW,5X,3HOLD,3
1X,3HLOC,12X,3HOLD,3X,3HLOC,6X,3HNEW/1X)
110 FORMAT ('21X,15,3H = ,15,2H,(,14,2H),,8X,15,2H,(,14,4H) = ,15,1H,.)
120 FORMAT ('1H0,20X,53HOLD STATEMENT NUMBERS NOT APPEARING IN THIS DIR
IRECTORY/21X,42HIFRE NOT REFERENCED AND HENCE ARE DELETED,.)
END
SUBROUTINE PASS2

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H 31
R 32
R 33
H 34
H 35
R 36
H 37
H 38
R 39
P 40
H 41
R 42
H 43
H 44
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H 47
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H 68
H 69
R 70
R 71
R 72
H 73
H 74
H 75
R 76
R 77
H 78
R 79
R 80
H 81
H 82
H 83
H 84
H 85
R 86
R 87
H 88
R 89
H 90
H 91
S 92

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C THIS ROUTINE READS THE DATA GENERATED BY PASS1 AND WRITES AND
C PUNCHES THE RENUMBERED DECK.
C UNNUMBERED CONTINUE AND FORMAT STATEMENTS ARE DELETED WITHOUT
C A DIAGNOSTIC.
C
COMMON
1      JINT(1600) ,JOB(80)      ,KBUFF(80)
2      ,LDEF(3000) ,LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
C
COMMON /LARGE/
      NWORDS      ,IOUT(1326)
C
COMMON /MISC/
1      ICOL      ,IFIR      ,IPASS      ,ISTAR
2      ,JCOL      ,JMAX      ,KILI(4)    ,KOL73(3)
3      ,L772      ,LAST      ,LCPY      ,LDOS(10)
4      ,LFIR      ,LQUAL      ,MEOF      ,MILDO
5      ,MLGC      ,MP2      ,MTRAN      ,NBLC
6      ,NCD      ,NDEF      ,NDOS      ,NINS
7      ,NPAH      ,NPUN      ,NREC      ,NREF
8      ,NRT1      ,NRT2      ,NTEMP(5)   ,NXEQ
9      ,NTRAN      ,NEND(3)    ,MPUN      ,MPRIN
EQUIVALENCE (KILI(1),KCLASS) , ( KILI(2),JTYPE)
EQUIVALENCE (KILI(3),L15) , (KILI(4),IMAX)
C
COMMON /ALPHA/ KBL,KOIG(10),KABC(26),KSPK(12)
C
COMMON /CONTOY/ NKTRL,KTRL(4,25)
C
COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE
C
COMMON /KSTCOM/ NKST,KST(13,65)
C
COMMON /CHOICE/
1      KBL5      ,KPUN      ,MCOL      ,MCOM
2      ,MEX      ,KD79      ,MLBL      ,MSTOP
3      ,MLIST     ,NROUT     ,MREF      ,MSKP
4      ,KD15      ,MSEH      ,MRIT      ,JUST
5      ,KPRIN     ,NOPT
C
EQUIVALENCE (MINUS,KSPK(7))
C
10 IF (MP2) 20,30,20
20 IF (NRT1) 30,30,40
30 RETURN
C
SET INITIAL CONSTANTS.
C
40 IPASS=2
MPAGE=0
NREC=0
IMAX=1326
C
50 IF (NRT1) 60,460,60
60 IOLD=IMAX
CALL IOSYS1 (3,KILI,4)
CALL IOSYS1 (3,IOUT,IMAX)
C
BLANK OUT REMAINDER OF PREVIOUS CARD, IF NECESSARY.

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S 3
S 4
S 5
S 6
S 7
S 8
S 9
S 10
S 11
S 12
S 13
S 14
S 15
S 16
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S 19
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S 21
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S 27
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S 37
S 38
S 39
S 40
S 41
S 42
S 43
S 44
S 45
S 46
S 47
S 48
S 49
S 50
S 51
S 52
S 53
S 54
S 55
S 56
S 57
S 58
S 59
S 60
S 61
S 62
S 63
S 64
S 65

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```

IF (IMAX,GE,IOLD) GO TO 80
INEW=IMAX+1
DO 70 I=INEW,IOLD
70 IOUT(I)=KBL
C
LOOK FOR $
80 IF (KLASS,LE,1) GO TO 110
DO 90 I=7,IMAX
IF (IOUT(I),EQ,KSPK(10)) GO TO 100
90 CONTINUE
GO TO 110
100 IF (MPRIN,EQ,0) WRITE (6,480) (IOUT(I),I=1,72)
WRITE (6,470)
110 NRT1=NRT1-1
IF (NREC) 130,120,130
120 CALL HEADER
IF (MPRIN,NE,0) CALL PAGE (0)
C
130 I=KLASS+1
GO TO (140,160,150,160,280,280,280,300,360,160,300),I
C
KLASS DESCRIPTION
0. CONTROL CARD
1. COMMENT
2. HEADER
3. NO STATEMENT NO ALLOWED (NON-EXECUTABLE)
4. CONTINUE
5. FORMAT STATEMENT.
6. STATEMENT NO. ALLOWED, NO REFERENCES
7. REFERENCES PRESENT, STATEMENT NO. ALLOWED.
8. END
9. INTRODUCTORY
10. NO
C
KLASS 0. CONTROL CARD
140 CONTINUE
RESERVED FOR FUTURE DEVELOPMENT.
GO TO 50
C
150 CALL KIMPAK
IF (MPRIN,NE,0) GO TO 170
IF (MPUN,NE,0) WRITE (6,500) (KIM(I,1),I=1,72)
IF (MPUN,EQ,0) WRITE (6,510) (KIM(I,1),I=1,72)
CALL PAGE (2)
GO TO 170
C
WRITE (PUNCH) NEW STATEMENT.
C
160 CALL KIMPAK
170 DO 270 J=1,NCD
NREC=NREC+KD79
IF (MPRIN) 180,220,180
180 IF (MSER) 190,200,190
190 WRITE (6,480) (KIM(I,J),I=1,72),KOL73,NREC
GO TO 210
200 WRITE (6,480) (KIM(I,J),I=1,72)
210 CALL PAGE (1)
220 IF (MPUN) 230,270,230
230 IF (MSER) 240,250,240
240 WRITE (8,490) (KIM(I,J),I=1,72),KOL73,NREC
GO TO 260
250 WRITE (8,490) (KIM(I,J),I=1,72)
260 NPUN=NPUN+1
270 CONTINUE
GO TO 50
S 66
S 67
S 68
S 69
S 70
S 71
S 72
S 73
S 74
S 75
S 76
S 77
S 78
S 79
S 80
S 81
S 82
S 83
S 84
S 85
S 86
S 87
S 88
S 89
S 90
S 91
S 92
S 93
S 94
S 95
S 96
S 97
S 98
S 99
S 100
S 101
S 102
S 103
S 104
S 105
S 106
S 107
S 108
S 109
S 110
S 111
S 112
S 113
S 114
S 115
S 116
S 117
S 118
S 119
S 120
S 121
S 122
S 123
S 124
S 125
S 126
S 127
S 128

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C
STATEMENT NO. BUT NO REFERENCES ALLOWED.
S 129
S 130
C
280 L772=L15
ICOL=0
CALL RENUM
IF (L772) 160,290,160
C
STATEMENT NO. ABSENT OR NOT REFERRED TO.
S 132
S 133
S 134
S 135
C
IS THIS A FORMAT STATEMENT OR CONTINUE STATEMENT...
S 136
S 137
C
290 IF (KLASS=5) 50,50,160
S 138
S 139
C
REFERENCES ALLOWED.
S 140
S 141
C
300 L772=L15
ICOL=0
CALL RENUM
DO 310 I=7,IMAX
JINT(I)=IOUT(I)
S 142
S 143
S 144
S 145
S 146
C
310 IOUT(I)=KBL
ICOL=6
JCOL=7
JMAX=IMAX
S 147
S 148
S 149
S 150
C
320 IF (JINT(JCOL)-KLR2) 330,340,330
S 151
S 152
C
330 IOUT(ICOL)=JINT(JCOL)
JCOL=JCOL+1
S 153
S 154
C
IF (JCOL=JMAX) 320,320,350
S 155
S 156
C
340 L772=JINT(JCOL+1)
JCOL=JCOL+2
CALL RENUM
IF (JCOL=JMAX) 320,320,350
S 157
S 158
S 159
C
350 IMAX=ICOL
GO TO 160
S 160
S 161
C
END STATEMENT.
S 162
S 163
C
360 NREC=NREC+KD79
IF (MPRIN) 370,410,370
S 164
S 165
S 166
C
370 IF (MSER) 380,390,380
S 167
S 168
C
380 WRITE (6,480) (IOUT(I),I=1,72),KOL73,NREC,MINUS
GO TO 400
S 169
S 170
C
390 WRITE (6,480) (IOUT(I),I=1,72)
CALL PAGE (1)
S 171
S 172
C
410 IF (MPUN) 420,460,420
S 173
S 174
C
420 IF (MSER) 430,440,430
S 175
S 176
C
430 WRITE (8,490) (IOUT(I),I=1,72),KOL73,NREC,MINUS
GO TO 450
S 177
S 178
C
440 WRITE (8,490) (IOUT(I),I=1,72)
450 NPUN=NPUN+1
460 CALL IOSYS1 (1,0,0)
RETURN
S 179
S 180
C
470 FORMAT (1H+,110X,9HS $ $ $)
480 FORMAT (7X,75A1,I4,A1)
490 FORMAT (75A1,I4,A1)
500 FORMAT (1H0,15X,72A1,5X,4H--PUNCHED)
510 FORMAT (1H0,15X,72A1,5X,13H--NOT PUNCHED)
END
S 181
S 182
S 183
S 184
S 185
S 186-
C
SUBROUTINE KIMPAK
T 1
T 2
C
THIS ROUTINE PACKS SUPER-CARD IMAGES FROM IOUT(I) INTO KIM(I,J).
T 3
T 4
C
COMMON
T 5

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```

1      JINT(1500)  ,JOB(80)    ,KBUFF(80)    T 6
2      ,LDEF(3000) ,LREF(1000)  T 7
DIMENSION KIM(80,20) T 8
EQUIVALENCE(JINT,KIM) T 9
C
COMMON /LARGE/   NWORDS      ,IOUT(1326) T 10
C
COMMON /MISC/
1      ICOL      ,IFIR      ,IPASS      ,ISTAR      T 11
2      ,JCOL     ,JMAX     ,KILI(4)   ,KOL73(3)  T 12
3      ,L772    ,LAST     ,LCPY     ,LDOS(10)  T 13
4      ,LFIR    ,LQUAL    ,MEOF     ,MILDO     T 14
5      ,MLGC    ,MP2      ,MTRAN    ,NBLC      T 15
6      ,NCD     ,NDEF     ,NDOS     ,NINS      T 16
7      ,NPAR    ,NPUN     ,NREC     ,NREF      T 17
8      ,NRT1    ,NRT2     ,NTEMP(5) ,NXEQ     T 18
9      ,NTRAN   ,KEND(J)  ,MPUN     ,MPRIN    T 19
EQUIVALENCE (KILI(1),KLASS) , ( KILI(2),JTYPE) T 20
EQUIVALENCE (KILI(3),L15) , ( KILI(4),IMAX) T 21
C
COMMON /ALPHA/  KBL,KDIG(10),KABC(26),KSPK(12) T 22
C
COMMON /CONTDY/ NKTRL,KTRL(*,25) T 23
C
COMMON /HOL2/  KBL2,KLR2,KLP2,KRP2,KERM T 24
C
COMMON /INIT/  LINE,MPAGE,NPAGE,KODE T 25
C
COMMON /KSTCOM/ NKST,KST(13,65) T 26
C
COMMON /CHOICE/
1      KBI5      ,KPUN      ,MCOL      ,MCOM      T 27
2      ,MEX      ,KD79     ,MLRL     ,MSTOP     T 28
3      ,MLIST    ,NROUT    ,MREF     ,MSKP     T 29
4      ,KD15    ,MSER     ,MRIT     ,JUST     T 30
5      ,KPRIN   ,NOPT     T 31
C
10 NCD=((IMAX-7)/66)+1 T 32
C
DO 20 I=1,72 T 33
20 KIM(I,1)=IOUT(I) T 34
C
*** CONTINUATION CARD PROCESSING *** T 35
30 K7=7 T 36
K72=72 T 37
C
DO 80 J=2,NCU T 38
K7=K7+66 T 39
K72=K72+66 T 40
L=6 T 41
DO 40 I=K7,K72 T 42
L=L+1 T 43
40 KIM(L,J)=IOUT(I) T 44
DO 50 I=1,5 T 45
50 KIM(I,J)=KBL T 46
IF (J=11) 70,60,60 T 47
60 KIM(6,J)=KSPK(10) T 48
GO TO 80 T 49
70 KIM(6,J)=KDIG(J) T 50
80 CONTINUE T 51
90 RETURN T 52

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END T 69-
SUBROUTINE RENUM U 1
C U 2
C THIS SUBROUTINE INSPECTS THE OLD STATEMENT NUMBER IN L772 AND U 3
C INSERTS THE NEW NUMBER CORRESPONDING TO L772 IN IOUT STARTING AT U 4
C ICOL+1. ON EXIT, L772 CONTAINS THE NEW STATEMENT NUMBER. U 5
C U 6
COMMON U 7
1      JINT(1600) ,JOB(80)    ,KBUFF(80)    U 8
2      ,LDEF(3000) ,LREF(1000)  U 9
DIMENSION KIM(80,20) U 10
EQUIVALENCE(JINT,KIM) U 11
C
COMMON /LARGE/   NWORDS      ,IOUT(1326) U 12
C
COMMON /MISC/
1      ICOL      ,IFIR      ,IPASS      ,ISTAR      U 13
2      ,JCOL     ,JMAX     ,KILI(4)   ,KOL73(3)  U 14
3      ,L772    ,LAST     ,LCPY     ,LDOS(10)  U 15
4      ,LFIR    ,LQUAL    ,MEOF     ,MILDO     U 16
5      ,MLGC    ,MP2      ,MTRAN    ,NBLC      U 17
6      ,NCD     ,NDEF     ,NDOS     ,NINS      U 18
7      ,NPAR    ,NPUN     ,NREC     ,NREF      U 19
8      ,NRT1    ,NRT2     ,NTEMP(5) ,NXEQ     U 20
9      ,NTRAN   ,KEND(3)  ,MPUN     ,MPRIN    U 21
EQUIVALENCE (KILI(1),KLASS) , ( KILI(2),JTYPE) U 22
EQUIVALENCE (KILI(3),L15) , ( KILI(4),IMAX) U 23
C
COMMON /ALPHA/  KBL,KDIG(10),KABC(26),KSPK(12) U 24
C
COMMON /CONTDY/ NKTRL,KTRL(*,25) U 25
C
COMMON /HOL2/  KBL2,KLR2,KLP2,KRP2,KERM U 26
C
COMMON /INIT/  LINE,MPAGE,NPAGE,KODE U 27
C
COMMON /KSTCOM/ NKST,KST(13,65) U 28
C
COMMON /CHOICE/
1      KBI5      ,KPUN      ,MCOL      ,MCOM      U 29
2      ,MEX      ,KD79     ,MLBL     ,MSTOP     U 30
3      ,MLIST    ,NROUT    ,MREF     ,MSKP     U 31
4      ,KD15    ,MSER     ,MRIT     ,JUST     U 32
5      ,KPRIN   ,NOPT     U 33
C
IF (L772) 30,80,10 U 34
C
SEARCH DEFINED STATEMENT TABLE FOR L772. U 35
C
10 DO 20 I=1,NDEF U 36
IF (LDEF(I)-L772) 20,40,20 U 37
20 CONTINUE U 38
C
NOT IN STATEMENT NUMBER LIST. DELETE NUMBER. U 39
C
30 L772=0 U 40
RETURN U 41
C
ASSEMBLE NEW STATEMENT NUMBER. U 42
C
40 I=I*KD15+KBI5 U 43
L772=I U 44

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DO 50 J=1,5
IT=I/10
K=I+1-[I*10
NTEMP(J)=KDIG(K)
I=IT
IF (I) 50,60,50
50 CONTINUE
J=5
C
C INSERT STATEMENT NUMBER DIGITS.
C
60 IF (ICOL) 70,90,70
70 ICOL=ICOL+1
IOUT(ICOL)=NTEMP(J)
J=J+1
IF (J) 70,80,70
80 RETURN
C
C STATEMENT NUMBER
C *RIGHT MRIT=-1
C *NORIGHT MRIT= 0
C *NOLEFT MRIT= 0
C *LEFT MRIT= 1
90 IF (J.EQ.5) GO TO 70
DO 100 I=1,5
100 IOUT(I)=KRL
C
C SET ICOL TO 0 OR 1
ICOL=MPRT
IF (ICOL.FQ.-1) ICOL=5-J
GO TO 70
END
BLOCK DATA
C
C THIS BLOCK DATA CONTAINS ALL THE DATA STATEMENTS FOR TIDY.
C
COMMON
1 JINT(1000) JOB(80) KHUFF(80)
2 LDEF(1000) LREF(1000)
DIMENSION KIM(80,20)
EQUIVALENCE(JINT,KIM)
C
COMMON /LARGE/ NWORDS IOUT(1326)
COMMON /NFW/ NOUT(1326)
C
COMMON /MISC/
1 ICOL IFIR IPASS ISTAR
2 COL JMAX KILI(4) KOLTJ(3)
3 772 LAST LCPY LDOS(10)
4 LFIR LQUAL MEOP MILDU
5 MLGC MP2 MTRAN NBLC
6 NCD NDEF NDOS NINS
7 NPAP NPUN NNEC NREF
8 NPTI NR12 NTFMP(5) NXEQ
9 NTRAN KEND(J) MPUN MPMIN
EQUIVALENCE (KILI(1):KCLASS) + ( KILI(2):JTYPE)
EQUIVALENCE (KILI(3):LIS) + (KILI(4):IMAX)
C
COMMON /ALPHA/ KBL,KDIG(10),KABC(26),KSPK(12)
C
COMMON /CONTIDY/ NKRL,KTRL(4,25)
C
REAL*8 MSG

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```

U 63
U 64
U 65
U 66
U 67
U 68
U 69
U 70
U 71
U 72
U 73
U 74
U 75
U 76
U 77
U 78
U 79
U 80
U 81
U 82
U 83
U 84
U 85
U 86
U 87
U 88
U 89
U 90
U 91
U 92
U 93
V 1
V 2
V 3
V 4
V 5
V 6
V 7
V 8
V 9
V 10
V 11
V 12
V 13
V 14
V 15
V 16
V 17
V 18
V 19
V 20
V 21
V 22
V 23
V 24
V 25
V 26
V 27
V 28
V 29
V 30
V 31
V 32

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REAL*8 NOUT
COMMON /DIOMSG/ MSG(10,30),NMSG
C
COMMON /HOL2/ KBL2,KLR2,KLP2,KRP2,KERM
C
COMMON /INIT/ LINE,MPAGE,NPAGE,KODE
C
COMMON /KSTCOM/ NKST,KST(13,65)
C
COMMON /CHOICE/
1 KB15 KPUN MCOL MCOM
2 MEX KD79 MLBL MSTOP
3 ML1ST NROUT MREF MSKP
4 KD15 MSER MRIT JUST
5 KPRIN NOPT
C
REAL*8 MSG1(10),MSG2(10),MSG3(10),MSG4(10),MSG5(10)
REAL*8 MSG6(10),MSG7(10),MSG8(10),MSG9(10),MSG10(10)
REAL*8 MSG11(10),MSG12(10),MSG13(10),MSG14(10),MSG15(10)
REAL*8 MSG16(10),MSG17(10),MSG18(10),MSG19(10),MSG20(10)
REAL*8 MSG21(10),MSG22(10),MSG23(10),MSG24(10),MSG25(10)
REAL*8 MSG26(10),MSG27(10),MSG28(10),MSG29(10),MSG30(10)
EQUIVALENCE (MSG(1,1),MSG1) + (MSG(1,2),MSG2) + (MSG(1,3),MSG3)
EQUIVALENCE (MSG(1,4),MSG4) + (MSG(1,5),MSG5) + (MSG(1,6),MSG6)
EQUIVALENCE (MSG(1,7),MSG7) + (MSG(1,8),MSG8) + (MSG(1,9),MSG9)
EQUIVALENCE (MSG(1,10),MSG10) + (MSG(1,11),MSG11) + (MSG(1,12),MSG12)
EQUIVALENCE (MSG(1,13),MSG13) + (MSG(1,14),MSG14) + (MSG(1,15),MSG15)
EQUIVALENCE (MSG(1,16),MSG16) + (MSG(1,17),MSG17) + (MSG(1,18),MSG18)
EQUIVALENCE (MSG(1,19),MSG19) + (MSG(1,20),MSG20) + (MSG(1,21),MSG21)
EQUIVALENCE (MSG(1,22),MSG22) + (MSG(1,23),MSG23) + (MSG(1,24),MSG24)
EQUIVALENCE (MSG(1,25),MSG25) + (MSG(1,26),MSG26) + (MSG(1,27),MSG27)
EQUIVALENCE (MSG(1,28),MSG28) + (MSG(1,29),MSG29) + (MSG(1,30),MSG30)
C
DIMENSION KST1(13),KST2(13),KST3(13),KST4(13),KST5(13)
DIMENSION KST6(13),KST7(13),KST8(13),KST9(13),KST10(13)
DIMENSION KST11(13),KST12(13),KST13(13),KST14(13),KST15(13)
DIMENSION KST16(13),KST17(13),KST18(13),KST19(13),KST20(13)
DIMENSION KST21(13),KST22(13),KST23(13),KST24(13),KST25(13)
DIMENSION KST26(13),KST27(13),KST28(13),KST29(13),KST30(13)
DIMENSION KST31(13),KST32(13),KST33(13),KST34(13),KST35(13)
DIMENSION KST36(13),KST37(13),KST38(13),KST39(13),KST40(13)
DIMENSION KST41(13),KST42(13),KST43(13),KST44(13),KST45(13)
DIMENSION KST46(13),KST47(13),KST48(13),KST49(13),KST50(13)
DIMENSION KST51(13),KST52(13),KST53(13),KST54(13),KST55(13)
DIMENSION KST56(13),KST57(13),KST58(13),KST59(13),KST60(13)
DIMENSION KST61(13),KST62(13),KST63(13),KST64(13),KST65(13)
EQUIVALENCE (KST(1,1),KST1) + (KST(1,2),KST2) + (KST(1,3),KST3)
EQUIVALENCE (KST(1,4),KST4) + (KST(1,5),KST5) + (KST(1,6),KST6)
EQUIVALENCE (KST(1,7),KST7) + (KST(1,8),KST8) + (KST(1,9),KST9)
EQUIVALENCE (KST(1,10),KST10) + (KST(1,11),KST11) + (KST(1,12),KST12)
EQUIVALENCE (KST(1,13),KST13) + (KST(1,14),KST14) + (KST(1,15),KST15)
EQUIVALENCE (KST(1,16),KST16) + (KST(1,17),KST17) + (KST(1,18),KST18)
EQUIVALENCE (KST(1,19),KST19) + (KST(1,20),KST20) + (KST(1,21),KST21)
EQUIVALENCE (KST(1,22),KST22) + (KST(1,23),KST23) + (KST(1,24),KST24)
EQUIVALENCE (KST(1,25),KST25) + (KST(1,26),KST26) + (KST(1,27),KST27)
EQUIVALENCE (KST(1,28),KST28) + (KST(1,29),KST29) + (KST(1,30),KST30)
EQUIVALENCE (KST(1,31),KST31) + (KST(1,32),KST32) + (KST(1,33),KST33)
EQUIVALENCE (KST(1,34),KST34) + (KST(1,35),KST35) + (KST(1,36),KST36)
EQUIVALENCE (KST(1,37),KST37) + (KST(1,38),KST38) + (KST(1,39),KST39)
EQUIVALENCE (KST(1,40),KST40) + (KST(1,41),KST41) + (KST(1,42),KST42)
EQUIVALENCE (KST(1,43),KST43) + (KST(1,44),KST44) + (KST(1,45),KST45)
EQUIVALENCE (KST(1,46),KST46) + (KST(1,47),KST47) + (KST(1,48),KST48)

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EQUIVALENCE (KST(1,49),KST49),(KST(1,50),KST50),(KST(1,51),KST51) V 96
EQUIVALENCE (KST(1,52),KST52),(KST(1,53),KST53),(KST(1,54),KST54) V 97
EQUIVALENCE (KST(1,55),KST55),(KST(1,56),KST56),(KST(1,57),KST57) V 98
EQUIVALENCE (KST(1,58),KST58),(KST(1,59),KST59),(KST(1,60),KST60) V 99
EQUIVALENCE (KST(1,61),KST61),(KST(1,62),KST62),(KST(1,63),KST63) V 100
EQUIVALENCE (KST(1,64),KST64),(KST(1,65),KST65) V 101
C V 102
DIMENSION KTRL1(4),KTRL2(4),KTRL3(4),KTRL4(4),KTRL5(4) V 103
DIMENSION KTRL6(4),KTRL7(4),KTRL8(4),KTRL9(4),KTRL10(4) V 104
DIMENSION KTRL11(4),KTRL12(4),KTRL13(4),KTRL14(4),KTRL15(4) V 105
DIMENSION KTRL16(4),KTRL17(4),KTRL18(4),KTRL19(4),KTRL20(4) V 106
DIMENSION KTRL21(4),KTRL22(4),KTRL23(4),KTRL24(4),KTRL25(4) V 107
EQUIVALENCE (KTRL1,KTRL(1,1)),(KTRL2,KTRL(1,2)) V 108
1 *(KTRL3,KTRL(1,3)),(KTRL4,KTRL(1,4)),(KTRL5,KTRL(1,5)) V 109
2 *(KTRL6,KTRL(1,6)),(KTRL7,KTRL(1,7)),(KTRL8,KTRL(1,8)) V 110
3 *(KTRL9,KTRL(1,9)),(KTRL10,KTRL(1,10)),(KTRL11,KTRL(1,11)) V 111
4 *(KTRL12,KTRL(1,12)),(KTRL13,KTRL(1,13)),(KTRL14,KTRL(1,14)) V 112
5 *(KTRL15,KTRL(1,15)),(KTRL16,KTRL(1,16)),(KTRL17,KTRL(1,17)) V 113
6 *(KTRL18,KTRL(1,18)),(KTRL19,KTRL(1,19)),(KTRL20,KTRL(1,20)) V 114
7 *(KTRL21,KTRL(1,21)),(KTRL22,KTRL(1,22)) V 115
8 *(KTRL23,KTRL(1,23)),(KTRL24,KTRL(1,24)),(KTRL25,KTRL(1,25)) V 116
C V 117
/ALPHA/ V 118
DATA KBL,KDIG/1H,1H0,1H1,1H2,1H3,1H4,1H5,1H6,1H7,1H8,1H9/ V 119
DATA KARC/1HA,1HB,1HC,1HD,1HE,1HF,1HG,1HH,1HI,1HJ,1HK,1HL,1HM,1HN, V 120
1HO,1HP,1HQ,1HR,1HS,1HT,1HU,1HV,1HW,1HX,1HY,1HZ/ V 121
DATA KSPK/1H*,1H.,1H(,1H/,1H),1H+,1H-,1H^,1H~,1H$,1H~,1H"/ V 122
V 123
/CONTDY/ V 124
DATA KTRL /22/ V 125
DATA KTRL1 /1HB,1HA,1HS,1HE/ V 126
DATA KTRL2 /1HI,1HD,1MI,1HN/ V 127
DATA KTRL3 /1HI,1HD,1HS,1HT/ V 128
DATA KTRL4 /1HR,1HO,1HU,1HT/ V 129
DATA KTRL5 /1HS,1HT,1HA,1HT/ V 130
DATA KTRL6 /1HC,1HA,1HR,1HD/ V 131
DATA KTRL7 /1HC,1HO,1HL,1HL/ V 132
DATA KTRL8 /1HC,1HO,1HM,1HM/ V 133
DATA KTRL9 /1HE,1HX,1HE,1HM/ V 134
DATA KTRL10 /1HL,1HA,1HB,1HE/ V 135
DATA KTRL11 /1HL,1HA,1HS,1HT/ V 136
DATA KTRL12 /1HL,1HI,1MS,1HT/ V 137
DATA KTRL13 /1HN,1HE,1HW,1HR/ V 138
DATA KTRL14 /1HR,1HE,1HF,1HE/ V 139
DATA KTRL15 /1HS,1HK,1HI,1HP/ V 140
DATA KTRL16 /1HS,1HT,1HO,1HP/ V 141
DATA KTRL17 /1HS,1HE,1HR,1HI/ V 142
DATA KTRL18 /1HR,1HI,1HG,1HM/ V 143
DATA KTRL19 /1HL,1HE,1HF,1HT/ V 144
DATA KTRL20 /1HC,1HO,1HL,1HU/ V 145
DATA KTRL21 /1HP,1HR,1MI,1HN/ V 146
DATA KTRL22 /1HW,1HR,1MI,1HT/ V 147
DATA KEND /1HD,1HN,1HE/ V 148
V 149
/CHARGE/ V 150
DATA KD15,KD79,MCOL,COM,MAX /1,1,-1,-1,0/ V 151
DATA FBIS /0/ V 152
DATA MBL,MLIST,MPUN,MREF,MSEX /0,-1,-1,0,-1/ V 153
DATA MRIT,NPUN,NROUT /0,0,0/ V 154
DATA KPHIN /1,KPUN/-1/ V 155
DATA JUST,NOP7/7,0/ V 156
V 157
/HOLP/ V 158

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DATA KBL2,KLR2,KLP2,KRP2,KERM/2H *,2H$,2H(,2H),2H $/ V 159
C V 160
/INIT/ V 161
C V 162
DATA LINE,NPAGE,KODE/1,0,0/ V 163
C V 164
/DIOMSG/ V 165
DATA NMSG/0/ V 166
DATA MSG1/6H THE A,6HBOVE S,6HTATEME,6HNT IS ,6HILLEGA,6HL AND ,6H V 167
1HAS BE,6HEN DEL,6HETED. ,6H / V 168
DATA MSG2/6H THE A,6HBOVE S,6HTATEME,6HNT HAS,6H A MIS,6HSING R,6H V 169
1IGHT P,6HARENTH,6HESIS. ,6H / V 170
DATA MSG3/6H THE A,6HBOVE S,6HTATEME,6HNT HAS,6H AN EX,6HCESS R,6H V 171
1IGHT P,6HARENTH,6HESIS. ,6H / V 172
DATA MSG4/6H THE A,6HBOVE S,6HTATEME,6HNT INC,6HORRECT,6HLY TER,6H V 173
1MINATE,6HS A DO,6H LOOP. ,6H / V 174
DATA MSG5/6H THE A,6HBOVE S,6HTATEME,6HNT CAN,6HNOT BE,6H REACH,6H V 175
1ED BY ,6HTHE PR,6HOGRAM. ,6H / V 176
DATA MSG6/6H STATE,6HMENT N,6HNUMBER ,6HTABLE ,6HFULL. ,6H RENUM,6H V 177
1BER PA,6HSS DEL,6HETED. ,6H / V 178
DATA MSG7/6H REFER,6HENCE N,6HNUMBER ,6HTABLE ,6HFULL. ,6H RENUM,6H V 179
1BER PA,6HSS DEL,6HETED. ,6H / V 180
DATA MSG8/6H THE A,6HBOVE S,6HTATEME,6HNT TYP,6HE IS O,6HBSOLET,6H V 181
1E AND ,6HIS DEL,6HETED. ,6H / V 182
DATA MSG9/6H ABOVE,6H STATE,6HMENT H,6HAS AN ,6HILLEGA,6HL FIRS,6H V 183
1T SPEC,6HIAL CH,6HARACTE,6HR. / V 184
DATA MSG10/6H ILLEG,6HAL DAT,6HA, FUN,6HCTION, ,6H OR SU,6HBROUTI,6 V 185
1HNE STA,6HTEMENT,6H. ,6H / V 186
DATA MSG11/6H THE A,6HBOVE C,6HUMMON ,6HOR DAT,6HA STAT,6HEMENT ,6 V 187
1HIS MIS,6HSING A,6H (/), ,6H / V 188
DATA MSG12/6H THE A,6HBOVE C,6HONTINU,6HE STAT,6HEMENT ,6HIS RED,6 V 189
1HUNDANT,6H AND I,6HS DELE,6HETED. / V 190
DATA MSG13/6H THE A,6HBOVE D,6HIMENSI,6HON STA,6HTEMENT,6H IS NO,6 V 191
1HT COMP,6HLETE. ,6H ,6H / V 192
DATA MSG14/6H A R ,6HN I N ,6HG , T,6HMMIS ST,6HATEMEN,6HT SHOU,6 V 193
1HLD FOL,6HLOW AN,6H END C,6HARD. / V 194
DATA MSG15/6H THE A,6HBOVE D,6HO STAT,6HEMENT ,6HNAS AN,6H INVAL,6 V 195
1HID TER,6HMINAL ,6HSTATEM,6HEMENT. / V 196
DATA MSG16/6H # A R,6H N I N,6H G , ,6HUNSATI,6HNSFIED ,6HDO LOO,6 V 197
1HPS. ,6H ,6H ,6H / V 198
DATA MSG17/6H UNNUM,6HBERED ,6HOR INV,6HALID F,6HORMAT ,6HSTATEM,6 V 199
1HENT DE,6HLETED. ,6H ,6H / V 200
DATA MSG18/6H WARNI,6HNG. A,6HBOVE S,6HTATEME,6HNT IS ,6HPOOR P,6 V 201
1HROGRAM,6HMING P,6HRACTIC,6HE. / V 202
DATA MSG19/6H ABOVE,6H GO TU,6H STATE,6HMENT I,6HS ILLE,6HGAL. ,6 V 203
1H ,6H ,6H ,6H / V 204
DATA MSG20/6HILLEGA,6HL ARIT,6HMMETIC,6H IF ST,6HATEMEN,6HT. I,6 V 205
1HF (ARI,6HMH) I,6H2,3 ,6H / V 206
DATA MSG21/6H ABOVE,6H NAME,6HIST ST,6HATEMEN,6HT MISS,6HING (/ ,6 V 207
1H), ,6H ,6H ,6H / V 208
DATA MSG22/6H ILLEG,6HAL REA,6HD, PRI,6HNT, OR,6H PUNCH,6H STATE,6 V 209
1HMENT. ,6H ,6H ,6H / V 210
DATA MSG23/6H ILLEG,6HAL REA,6HD ($$),6H LIST ,6HOR WRI,6HTE ($$,6 V 211
1H) LIST,6H STATE,6HEMENT. ,6H / V 212
DATA MSG24/6H DO LO,6HOP TAB,6HLE FUL,6HL. RE,6HNUMBER,6H PASS ,6 V 213
1HDELETE,6HD. ,6H ,6H / V 214
DATA MSG25/6H A R ,6HN I N ,6HG , ,6HCOMMA ,6HFOLLOW,6HING X ,6 V 215
1HMISIN,6HG IN A,6HBOVE F,6HORMAT. / V 216
DATA MSG26/6HTIDY C,6HANNOT ,6HPROCES,6HS THIS,6H CLASS,6H OF PR,6 V 217
1HOGRAM,6H (COP,6HY EXEC,6HMUTED.) / V 218
DATA MSG27/6H WARNI,6HNG. A,6HBOVE D,6HO-LOOP,6H TERMI,6HNS PR,6 V 219
1HEVIOUS,6HLY REF,6HERENCE,6HD. / V 220
C V 221
/KST/

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DATA NKST /63/
DATA KST 1/1HA,1HC,1MC,1ME,1MP,1HT,1M,1H,1H,1H,1H,1H,6,7,33/
DATA KST 2/1HA,1MS,1MC,1ME,1MN,1HT,1M,1H,1H,1H,1H,6,2,1/
DATA KST 3/1HA,1MS,1MC,1ME,1MI,1MG,1MN,1H,1M,1H,1H,6,7,2/
DATA KST 4/1MB,1HA,1MC,1MK,1MS,1MP,1MA,1ME,1H,9,6,3/
DATA KST 5/1MB,1ML,1MO,1MC,1MK,1MD,1MA,1MT,1HA,1H,9,2,4/
DATA KST 6/1MB,1MU,1MF,1MF,1ME,1MR,1MI,1MN,1H,1H,9,6,5/
DATA KST 7/1MB,1MU,1MF,1MF,1ME,1MR,1MO,1MU,1HT,1H,10,6,5/
DATA KST 8/1MC,1MA,1ML,1ML,1H,1M,1H,1H,1H,1H,4,6,6/
DATA KST 9/1MC,1MO,1HM,1HM,1MO,1HN,1H,1H,1H,1H,6,3,7/
DATA KST10/1MC,1MO,1HM,1MP,1ML,1ME,1MX,1H,1H,1H,7,3,3/
DATA KST11/1MC,1MO,1HN,1HT,1MI,1MN,1MU,1ME,1H,1H,8,4,8/
DATA KST12/1MD,1MA,1HT,1MA,1H,1H,1H,1H,1H,1H,4,3,9/
DATA KST13/1MD,1ME,1MC,1MO,1MD,1ME,1H,1H,1H,1H,7,7,10/
DATA KST14/1MD,1MI,1HM,1ME,1MN,1MS,1MI,1MO,1MN,1H,9,3,11/
DATA KST15/1MD,1MO,1MU,1MR,1ML,1ME,1MP,1MR,1MF,1MC,10,3,12/
DATA KST16/1MD,1MO,1MU,1MB,1ML,1ME,1M,1M,1M,1M,6,3,13/
DATA KST17/1MD,1MO,1H,1H,1H,1H,1H,1H,1H,1H,2,10,14/
DATA KST18/1ME,1MN,1MC,1MO,1MD,1ME,1M,1H,1H,1H,7,7,10/
DATA KST19/1ME,1MN,1MD,1MF,1MI,1ML,1H,1H,1H,1H,7,6,15/
DATA KST20/1ME,1MN,1MD,1H,1H,1H,1H,1H,1H,1H,3,8,16/
DATA KST21/1ME,1MN,1HT,1HR,1MY,1H,1H,1H,1H,1H,5,3,3/
DATA KST22/1ME,1MQ,1MU,1MI,1MV,1MA,1ML,1ME,1MN,1MC,10,3,17/
DATA KST23/1ME,1MX,1HT,1ME,1MR,1MN,1MA,1ML,1M,1H,8,3,3/
DATA KST24/1MF,1MI,1MN,1MI,1MS,1M,1H,1H,1H,1H,5,3,18/
DATA KST25/1MF,1MO,1MR,1HM,1MA,1HT,1H,1H,1H,1H,6,5,19/
DATA KST26/1MF,1MO,1HN,1HT,1HR,1MA,1MN,1H,1H,1H,7,2,20/
DATA KST27/1MI,1MF,1H,1MU,1HN,1MI,1HT,1H,1H,1H,8,7,42/
DATA KST28/1MF,1MU,1HN,1MC,1HT,1MI,1MO,1HN,1H,1H,8,2,35/
DATA KST29/1MG,1MO,1HT,1MO,1MI,1H,1H,1H,1H,5,7,23/
DATA KST30/1MG,1MO,1HT,1MO,1H,1H,1H,1H,1H,1H,4,7,24/
DATA KST31/1MI,1MF,1MA,1MC,1MC,1MU,1HM,1MU,1ML,1MA,10,7,25/
DATA KST32/1MI,1MF,1MQ,1MU,1MO,1MT,1MI,1ME,1MN,1HT,10,7,26/
DATA KST33/1MI,1MF,1M,1MD,1MI,1MV,1MI,1MO,1ME,1MC,10,7,27/
DATA KST34/1MI,1MF,1M,1ME,1MN,1MD,1MF,1MI,1ML,1ME,10,7,28/
DATA KST35/1MI,1MF,1M,1MS,1ME,1MN,1MS,1ME,1ML,1MI,10,7,29/
DATA KST36/1MI,1MF,1M,1MS,1ME,1MN,1MS,1ME,1MS,1HM,10,7,30/
DATA KST37/1MI,1MF,1M,1H,1H,1H,1H,1H,1H,1H,3,7,31/
DATA KST38/1MI,1HN,1HT,1ME,1MG,1ME,1MR,1H,1H,1H,7,3,3/
DATA KST39/1ML,1MO,1MG,1MI,1MC,1MA,1ML,1H,1H,1H,7,3,3/
DATA KST40/1HM,1HA,1MC,1HM,1MI,1MN,1ME,1H,1H,7,2,1/
DATA KST41/1HM,1HA,1MM,1ME,1ML,1MI,1MS,1HT,1H,1H,8,3,32/
DATA KST42/1HP,1HA,1MU,1MS,1ME,1H,1H,1H,1H,5,6,3/
DATA KST43/1HP,1HR,1MI,1MN,1HT,1H,1H,1H,1H,5,7,33/
DATA KST44/1HP,1HR,1MO,1MC,1MR,1MA,1MM,1H,1H,7,2,35/
DATA KST45/1MP,1MU,1MN,1MC,1HM,1H,1H,1H,1H,5,7,33/
DATA KST46/1MR,1ME,1MA,1MD,1MI,1HN,1MP,1MU,1HT,10,7,36/
DATA KST47/1MR,1ME,1MA,1MD,1HT,1HA,1MP,1ME,1H,1H,8,6,37/
DATA KST48/1MR,1ME,1MA,1MD,1H,1H,1H,1H,1H,1H,5,7,38/
DATA KST49/1MR,1ME,1MA,1MD,1H,1H,1H,1H,1H,1H,4,7,33/
DATA KST50/1MR,1ME,1MA,1ML,1H,1H,1H,1H,1H,1H,4,3,3/
DATA KST51/1MR,1ME,1MT,1MU,1MR,1MN,1H,1H,1H,6,6,39/
DATA KST52/1MR,1ME,1MW,1MI,1MN,1MD,1H,1H,1H,6,6,3/
DATA KST53/1MS,1ME,1MG,1HM,1ME,1MN,1HT,1H,1H,7,9,34/
DATA KST54/1MS,1ME,1HN,1MS,1ME,1ML,1MI,1MG,1HM,1HT,10,6,40/
DATA KST55/1MS,1HT,1MO,1HP,1H,1H,1H,1H,1H,4,6,41/
DATA KST56/1MS,1MU,1MB,1MR,1MO,1MU,1HT,1MI,1MN,1ME,10,2,35/
DATA KST57/1MT,1MY,1MP,1ME,1H,1H,1H,1H,1H,1H,4,3,63/
DATA KST58/1MW,1MR,1MI,1HT,1ME,1MO,1MU,1MT,1MP,1MU,10,7,44/
DATA KST59/1MW,1MR,1MI,1HT,1ME,1MT,1MA,1MP,1ME,1H,9,6,45/
DATA KST60/1MW,1MR,1MI,1HT,1ME,1H,1H,1H,1H,6,7,38/
DATA KST61/1MC,1MV,1ME,1MR,1ML,1MA,1MY,1H,1H,1H,7,9,34/
DATA KST62/1MI,1MD,1ME,1MN,1HT,1H,1H,1H,1H,5,9,22/

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DATA KST63/1MF,1MR,1ME,1MU,1MU,1ME,1MN,1MC,1MY,1H,9,3,21/
REAL*8 LINE 1(14),LINE 2(14),LINE 3(14),LINE 4(14),LINE 5(14)
D,LINE 6(14),LINE 7(14),LINE 8(14),LINE 9(14),LINE 10(14),LINE 11(14)
D,LINE 12(14),LINE 13(14),LINE 14(14),LINE 15(14),LINE 16(14),LINE 17(14)
D,LINE 18(14),LINE 19(14),LINE 20(14),LINE 21(14),LINE 22(14),LINE 23(14)
D,LINE 24(14),LINE 25(14),LINE 26(14),LINE 27(14),LINE 28(14),LINE 29(14)
D,LINE 30(14),LINE 31(14),LINE 32(14),LINE 33(14),LINE 34(14),LINE 35(14)
D,LINE 36(14),LINE 37(14),LINE 38(14),LINE 39(14),LINE 40(14),LINE 41(14)
D,LINE 42(14),LINE 43(14),LINE 44(14),LINE 45(14),LINE 46(14),LINE 47(14)
D,LINE 48(14),LINE 49(14),LINE 50(14),LINE 51(14),LINE 52(14),LINE 53(14)
D,LINE 54(14),LINE 55(14),LINE 56(14),LINE 57(14),LINE 58(14),LINE 59(14)
D,LINE 60(14),LINE 61(14),LINE 62(14),LINE 63(14),LINE 64(14),LINE 65(14)
D,LINE 66(14),LINE 67(14),LINE 68(14),LINE 69(14),LINE 70(14),LINE 71(14)
D,LINE 72(14),LINE 73(14),LINE 74(14),LINE 75(14),LINE 76(14),LINE 77(14)
D,LINE 78(14),LINE 79(14),LINE 80(14),LINE 81(14),LINE 82(14),LINE 83(14)
D,LINE 84(14),LINE 85(14)
EQUIVALENCE (NOUT(1),LINE1)
1 (NOUT( 15),LINE2) (NOUT( 29),LINE3) (NOUT( 43),LINE4)
2 (NOUT( 57),LINE5) (NOUT( 71),LINE6) (NOUT( 85),LINE7)
3 (NOUT( 99),LINE8) (NOUT( 113),LINE9) (NOUT( 127),LINE10)
4 (NOUT( 141),LINE11) (NOUT( 155),LINE12) (NOUT( 169),LINE13)
5 (NOUT( 183),LINE14) (NOUT( 197),LINE15) (NOUT( 211),LINE16)
6 (NOUT( 225),LINE17) (NOUT( 239),LINE18) (NOUT( 253),LINE19)
7 (NOUT( 267),LINE20) (NOUT( 281),LINE21) (NOUT( 295),LINE22)
8 (NOUT( 309),LINE23) (NOUT( 323),LINE24) (NOUT( 337),LINE25)
9 (NOUT( 351),LINE26) (NOUT( 365),LINE27) (NOUT( 379),LINE28)
$ (NOUT( 393),LINE29) (NOUT( 407),LINE30) (NOUT( 421),LINE31)
$ (NOUT( 435),LINE32) (NOUT( 449),LINE33) (NOUT( 463),LINE34)
$ (NOUT( 477),LINE35) (NOUT( 491),LINE36) (NOUT( 505),LINE37)
$ (NOUT( 519),LINE38) (NOUT( 533),LINE39) (NOUT( 547),LINE40)
$ (NOUT( 561),LINE41) (NOUT( 575),LINE42) (NOUT( 589),LINE43)
$ (NOUT( 603),LINE44) (NOUT( 617),LINE45) (NOUT( 631),LINE46)
$ (NOUT( 645),LINE47) (NOUT( 659),LINE48) (NOUT( 673),LINE49)
$ (NOUT( 701),LINE51) (NOUT( 715),LINE52)
EQUIVALENCE
1 (NOUT( 729),LINE53) (NOUT( 743),LINE54) (NOUT( 757),LINE55)
2 (NOUT( 771),LINE56) (NOUT( 785),LINE57) (NOUT( 799),LINE58)
3 (NOUT( 813),LINE59) (NOUT( 827),LINE60) (NOUT( 841),LINE61)
4 (NOUT( 855),LINE62) (NOUT( 869),LINE63) (NOUT( 883),LINE64)
5 (NOUT( 897),LINE65) (NOUT( 911),LINE66) (NOUT( 925),LINE67)
6 (NOUT( 939),LINE68) (NOUT( 953),LINE69) (NOUT( 967),LINE70)
7 (NOUT( 981),LINE71) (NOUT( 995),LINE72) (NOUT( 1009),LINE73)
8 (NOUT( 1023),LINE74) (NOUT( 1037),LINE75) (NOUT( 1051),LINE76)
9 (NOUT( 1065),LINE77) (NOUT( 1079),LINE78) (NOUT( 1093),LINE79)
$ (NOUT( 1107),LINE80) (NOUT( 1121),LINE81) (NOUT( 1135),LINE82)
$ (NOUT( 1149),LINE83) (NOUT( 1163),LINE84) (NOUT( 1177),LINE85)
DATA NWORDS /1050/
DATA LINE 1/
1 6M 6H 6H * * 6H * * 6H * T I ;
2 6H D Y 6H * * * 6H 6H * * 6H ;
3 6H 6H 6H 2H / 6H
DATA LINE 2/
1 6HOA PRO,6HGRAM T,6H RENU,6HMBER A,6HMND OTH,
2 6HERWISE,6H CLEAN,6H UP OL,6MD AND ,6HTIRED ,
3 6HFORTRA,6HN DECK,6HS, 2H /
DATA LINE 3/
1 6H 6H 6H H,6HARRY M,6H MURPH,
2 6M 6H 6H 6H 6H 6H ,
J 6H 6H 6H 2H /
DATA LINE 4/

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1 6M      6M      6M      A,6M IK FOR,6M CE WEA,
2 6M PONS L,6M ABORAT,6M ORY      6M      6M
3 6M      6M      6M      2M /
DATA LINE 5/
1 6M      6M      6M      K,6M IRTLAN,6M D AIR ,
2 6M FORCE ,6M BASE ,6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE 6/
1 6M0     6M      6M      ADAP,6M TED FO,6M R USE ,
2 6M AT L,R,6M L. BY,6M JOSEP,6M E. K,6M ATZ ,
3 6M      6M      6M      2M /
DATA LINE 7/
1 6M      6M      6M      SUBS,6M EQUENT,6M LLY MOD,
2 6M IFIED ,6M BY ROG,6M ER CHA,6M FFEE. ,6M
3 6M      6M      6M      2M /
DATA LINE 8/
1 6M THE D,6M EFAULT,6M FILE ,6M NAMES ,6M MAKE ,
2 6M      6M      6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE 9/
1 6M      6M      6M      TID,6M Y(INPU,6M T,OUTP,
2 6M UT,PUN,6M CH) ,6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE10/
1 6M0 A CAR,6M D WITH,6M * IN ,6M COLUMN,6M I. WH,
2 6M ICH IS,6M NOT R,6M ECOGNI,6M ZED AS,6M A CON,
3 6M TROL C,6M HAWD IS,6M TREAT,2M ED/
DATA LINE11/
1 6M AS A ,6M COMMEN,6M T, AND,6M IS TR,6M ANSMIT,
2 6M TED LI,6M TERALL,6M Y, A ,6M CARD W,6M ITH **,
3 6M IN CO,6M HLUMNS ,6M I, AND,2M /
DATA LINE12/
1 6M 2. IS,6M IGNOR,6M ED BY ,6M TIDY, ,6M AND MA,
2 6M BE U,6M SED FO,6M R COMM,6M ENTS. ,6M
3 6M      6M      6M      2M /
DATA LINE13/
1 6M ODEFER,6M RED OP,6M TIONS ,6M TAKE E,6M FFECT ,
2 6M AT THE,6M START,6M OF PA,6M SS 2, ,6M DURING
3 6M WHICH,6M THE O,6M HPUTUT ,2M /
DATA LINE14/
1 6M DECK ,6M HIS PUN,6M CHED. ,6M THEY ,6M APPLY ,
2 6M TO A W,6M HOLE R,6M OUTINE,6M. IF ,6M THERF ,
3 6M ARE CO,6M NFLICT,6M ING ,2M /
DATA LINE15/
1 6M DEFER,6M RED OP,6M TIONS, ,6M THE L,6M AST ON,
2 6M IS U,6M SED. ,6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE16/
1 6M IMMED,6M IATE O,6M PTIONS,6M TAKE ,6M EFFECT,
2 6M AS SO,6M ON AS ,6M THEY A,6M KE REC,6M OGNIZL,
3 6M DUR,6M ING TH,6M E PASS,2M /
DATA LINE17/
1 6M THEY ,6M AFFECT,6M. ,6M      6M
2 6M      6M      6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE18/
1 6M ONOTF ,6M THAT I,6M EXT MA,6M Y NOW ,6M BE SET,
2 6M OFF R,6M Y *S I,6M N FOM,6M AT STA,6M TEMENT,
3 6M S, BUT,6M 'IDY ,6M STILL ,2M /
DATA LINE19/
1 6M CANT ,6M HANDLE,6M DOLLA,6M S,6M SIGN,6M S FOR ,
2 6M SEPARA,6M TING S,6M IATE,6M ENTS. ,6M (IT DO,
3 6M S PUT,6M OUT A,6M FLAG, ,2M) /

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DATA LINE20/
1 6M0     6M      6M      6M      6M
2 6M      6M      6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE21/
1 6M0     6M      6M      6M THESE,6M ARE T,
2 6M ME CON,6M TROL C,6M HARDS ,6M      6M
3 6M      6M      6M      2M /
DATA LINE22/
1 6M      6M      6M      6M RECOG,6M NIZED ,
2 6M BY TID,6M Y. TH,6M E ,6M      6M
3 6M      6M      6M      2M /
DATA LINE23/
1 6M      6M      6M      6M DEFAU,6M LTY OPT,
2 6M ION IS,6M GIVEN,6M FIRST,6M ,6M
3 6M      6M      6M      2M /
DATA LINE24/
1 6M IYPE ,6M CODE,6M LETTE,6M S E,6M XAMPLE,
2 6M      6M      C,6M MMENT,6M S ,6M
3 6M      6M      6M      2M /
DATA LINE25/
1 6M ISCE ,6M LLANE,6M S CON,6M TROL C,6M HARDS. ,
2 6M      6M      6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE26/
1 6M0 I,6M      *6M LAST ,6M      *6M LAST ,
2 6M      6M      T,6M HELLS T,6M IDY TO,6M STOP ,
3 6M ALL PR,6M OCESSI,6M NG. ,2M /
DATA LINE27/
1 6M0 I,6M      *6M STOP ,6M      *6M STOP ,
2 6M      6M      S,6M ME AS,6M *LAST,6M
3 6M      6M      6M      2M /
DATA LINE28/
1 6M0 I,6M      *6M SKIP ,6M      *6M SKIP ,
2 6M      6M      S,6M KIPS T,6M O AN E,6M ND CAR,
3 6M0. ,6M      6M      2M /
DATA LINE29/
1 6M0     6M      *6M NEWRO ,6M      *6M NEW RO,
2 6M UTINE ,6M      R,6M SESETS ,6M EVERYT,6M MING T,
3 6M STAR,6M TING V,6M ALUES, ,2M /
DATA LINE30/
1 6M CARDS,6M TO CO,6M NTROL ,6M WHAT I,6M S PUNC,
2 6M ED. ,6M      6M      6M      6M
3 6M      6M      6M      2M /
DATA LINE31/
1 6M0 D,6M      *6M CARD ,6M      *6M CARDS ,
2 6M      6M      R,6M EQUEST,6M S PUNC,6M H OUTP,
3 6M UT ,6M      6M      2M /
DATA LINE32/
1 6M      6M      *6M NOCARD,6M      *6M NO CAR,
2 6M S ,6M      S,6M HUPPRES,6M SES PU,6M NCH OU,
3 6M TPUT, ,6M      6M      2M /
DATA LINE33/
1 6M0 I,6M      *6M COLL ,6M      *6M COLLEC,
2 6M FORM,6M AT S ,6M HROU,6M S ,6M FORMAT,6M STATE,
3 6M ENTS ,6M AT THE,6M END O,2M F /
DATA LINE34/
1 6M      6M      *6M NOCOLL,6M      *6M NO COL,
2 6M LECT ,6M      T,6M ME ROU,6M TINE, ,6M HOR LEA,
3 6M YES TH,6M IN ,6M PLACE, ,2M /
DATA LINE35/
1 6M0 I,6M      *6M COMM ,6M      *6M COMMEN,

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2 6M TS 6M T,6MTRANSJ,6M TS COM,6MMENT S, V 473
3 6M TATEM,6MNTS TO,6M OUTPU,2M / V 474
DATA LINE36/ V 475
1 6M 6M *6MNOCOMM,6M *6MNO COM, V 476
2 6MMENTS 6M 0,6MHR DELE,6M TES TH,6MEM, N, V 477
3 6MOTE TH,6M AT TH,6MS IS N,2MOW/ V 478
DATA LINE37/ V 479
1 6M 6M 6M 6M 6M , V 480
2 6M 6M A,6MHN IMME,6M DIATE ,6M OPTION, V 481
3 6M SO C,6MOMMENT,6MS MAY ,2MBE/ V 482
DATA LINE38/ V 483
1 6M 6M 6M 6M 6M , V 484
2 6M 6M B,6MHRACKET,6M ED, 6M , V 485
3 6M 6M 6M ,2M / V 486
DATA LINE39/ V 487
1 6MOCARDS,6M TO CO,6MNTHOL ,6MWHAT I,6MS PRIN, V 488
2 6M TED, 6M 6M ,6M ,6M , V 489
3 6M 6M 6M ,2M / V 490
DATA LINE40/ V 491
1 6M0 I,6M *6M LIST ,6M *6M LIST , V 492
2 6M 6M R,6MEQUEST,6MS/SUPP,6MRESSES, V 493
3 6M A LIS,6MTING O,6MF THE ,2M / V 494
DATA LINE41/ V 495
1 6M 6M *6M NULIST,6M *6MNO LIS, V 496
2 6M 6M O,6MHRIGINA,6M L CAMD,6MS, V 497
3 6M 6M 6M ,2M / V 498
DATA LINE42/ V 499
1 6M0 I,6M(OLD),6M PRIN ,6M *6M PRINT , V 500
2 6M 6M N,6MEQUEST,6MS/SUPP,6MRESSES, V 501
3 6M A LIS,6MTING O,6MF ROTH,2M / V 502
DATA LINE43/ V 503
1 6M D,6M(NEW),6M NOPHIN,6M *6MNO PRI, V 504
2 6MNT 6M O,6MHRIGINA,6M L AND ,6MNEW CA, V 505
3 6M RDS, 6M 6M ,2M / V 506
DATA LINE44/ V 507
1 6M 6M 6M 6M 6M , V 508
2 6M 6M D,6MNIAGNUS,6MNTICS A,6MNE PRI, V 509
3 6MNTED I,6MHN CASE,6M OF ,2M / V 510
DATA LINE45/ V 511
1 6M 6M 6M 6M 6M , V 512
2 6M 6M E,6MHRUN, 6MEVEN W,6MHNEN OU, V 513
3 6M TPUT I,6MS SUPP,6MRESSES,2M, / V 514
DATA LINE46/ V 515
1 6M0 D,6M *6MNOREFE,6M *6MNO RFF, V 516
2 6MERENCE,6MS S,6M SUPPRES,6MSES/RE,6MQUESTS, V 517
3 6M A CRO,6MSS-REF,6MERENCE,2M / V 518
DATA LINE47/ V 519
1 6M 6M *6MREFE ,6M *6MREFERE, V 520
2 6MNCES 6M T,6MABLE O,6MF OLD ,6MAND NE, V 521
3 6M STAT,6MEMENT ,6MNUMBER,2MS, / V 522
DATA LINE48/ V 523
1 6MOCARDS,6M WHICH,6M AFFEC,6MT THE ,6MFORMAT, V 524
2 6M OF TH,6M PUNC,6MHEO UU,6M TPUT, 6M , V 525
3 6M 6M 6M ,2M / V 526
DATA LINE49/ V 527
1 6M0 I,6M *6MNOEXEM,6M *6MNO EXE, V 528
2 6MPT 6M E,6MHEMPTS,6M NON-E,6MEXECUTA, V 529
3 6MIF ST,6MATEMEN,6M TS ,2M / V 530
DATA LINE50/ V 531
1 6M 6M *6MEXEM ,6M *6MHEXEMPT, V 532
2 6M 6M *6MCOMMON,6M DIMEN,6MSION,6M, V 533
3 6M : F,6MHRUM PH,6MCESSI,6MNG, V 534
DATA LINE51/ V 535

1 6M1 D,6M *6MNO RIGH,6M *6MNO RIG, V 536
2 6MHT ADJ,6MUST S,6M TATEM,6MNT NUM,6MBERS S, V 537
3 6M TART I,6MHN COL, 6M 1, ,2M / V 538
DATA LINE52/ V 539
1 6M 6M *6MHRIGH ,6M *6MHRIGHT , V 540
2 6MADJUST,6M S,6M TATEM,6MNT NUM,6MBERS E, V 541
3 6MND IN ,6MCOL, S,6M, ,2M / V 542
DATA LINE53/ V 543
1 6M0 D,6M *6MLEFT ,6M *6MLEFT A, V 544
2 6MADJUST ,6M S,6MAME AS,6M *NO R,6MIGHT , V 545
3 6M 6M 6M ,2M / V 546
DATA LINE54/ V 547
1 6M 6M *6MNOLEFT,6M *6MNO LEF, V 548
2 6M ADJU,6MST S,6M TATEM,6MNT NUM,6MBERS S, V 549
3 6M TART I,6MHN COL,6MHN C, ,2M / V 550
DATA LINE55/ V 551
1 6M0 I,6M *6M COLU ,6M *6M COLUMN, V 552
2 6M = 7, 6M F,6MORTRAN,6M START,6MS IN C, V 553
3 6M COLUMN,6M7, 6M ,2M / V 554
DATA LINE56/ V 555
1 6M 6M *6M ,6M *6M COLUMN, V 556
2 6M = 12,6M F,6MORTRAN,6M START,6MS IN C, V 557
3 6M COLUMN,6M12, 6M ,2M / V 558
DATA LINE57/ V 559
1 6M 6M *6MNO COLU,6M *6MNO COL, V 560
2 6MUMN 6M F,6MIRST L,6M ETTER ,6M OF FOR, V 561
3 6MTRAN I,6MS NOT ,6MMOVED,2M / V 562
DATA LINE58/ V 563
1 6MOCARDS,6M WHICH,6M AFFEC,6MT THE ,6MNEW ST, V 564
2 6MATEMEN,6MT NUMB,6MERS, 6M 6M , V 565
3 6M 6M 6M ,2M / V 566
DATA LINE59/ V 567
1 6M0 D,6M *6MNOBASE,6M *6MNO BAS, V 568
2 6ME 6M S,6MAME AS,6M *BASE,6M=0, V 569
3 6M 6M 6M ,2M / V 570
DATA LINE60/ V 571
1 6M 6M *6MBASE ,6M *6MBASE =, V 572
2 6M 100, 6M S,6METS ZE,6MPROTH S,6M TATEM, V 573
3 6MNT NUM,6MBER, 6M ,2M / V 574
DATA LINE61/ V 575
1 6M0 D,6M *6MSTAT ,6M *6MSTATEM, V 576
2 6MENT ST,6MNEP=2, 6MSETS T,6MME STA,6MTEMENT, V 577
3 6M NUMRE,6MHR INCR,6MEMENT ,2M / V 578
DATA LINE62/ V 579
1 6MOCARDS,6M WHICH,6M AFFEC,6MT THE ,6MSERIAL, V 580
2 6M NUMRE,6MHR IN ,6M COLUMN,6MS 73-8,6M0, V 581
3 6M 6M 6M ,2M / V 582
DATA LINE63/ V 583
1 6M0 D,6M *6MSEWI ,6M *6MSERIAL, V 584
2 6M 6M R,6MEQUEST,6MS/SUPP,6MRESSES, V 585
3 6M SERIA,6MHL NAME,6MS AND ,2M / V 586
DATA LINE64/ V 587
1 6M 6M *6MNOSEWI,6M *6MNO SER, V 588
2 6MIAL 6M N,6MNUMBERS,6M IN CO,6M LUMNS, V 589
3 6M73-80,6M 6M ,2M / V 590
DATA LINE65/ V 591
1 6M0 D,6M *6MNO LABE,6M *6MNO LAB, V 592
2 6MEL 6M T,6MIDY US,6MES THE,6M ALPHA, V 593
3 6MRET FO,6MHR LARE,6MLS, ,2M / V 594
DATA LINE66/ V 595
1 6M 6M *6MLABE ,6M *6MLABEL , V 596
2 6M 6M T,6MIDY LO,6MOKS IN,6M COL, V 597
3 6M73-75 ,6M OF THE,6M FIRST,2M / V 598

DATA LINE67/					V 599
1	6H	6H	6H	6H	V 600
2	6H	6H	C,6HARD IN,6H	TME R,6MOUTINE,	V 601
3	6H	FOR T,6HHE LAB,6H	HEL,	2H /	V 602
DATA LINE68/					V 603
1	6H0	0,6H	*,6HROUT	6H	*,6HROUTIN,
2	6H	= 26,6H,	S,6HETS TH,6H	ROUT,6H	INE CO,
3	6HUNTER,6H	WHICH,6H	MAY	2H /	V 605
DATA LINE69/					V 606
1	6H	6H	6H	6H	V 607
2	6H	6H	A,6HFFECT	6H	TME LA,6H
3	6H	EE *NO,6H	LABEL,6H)	2H /	V 609
DATA LINE70/					V 610
1	6H0	0,6H	*,6HMIDST	6H	*,6HMID STE,
2	6HP	= 5,6H	S,6HETS TH,6H	SERI,6H	AL NUM,
3	6H	BER IN,6H	CREMEN,6H	T,	2H /
DATA LINE71/					V 614
1	6H0	0,6H	*,6HMIDIN	6H	*,6HMID INC,
2	6H	REMENT,6H=5,	S,6HAME AS,6H	*ID S,6H	TEP ,
3	6H	6H	6H	2H /	V 617
DATA LINE72/					V 618
1	6H0	MISCE,6H	LLANEO,6H	MUS CON,6H	TROL C,6H
2	6H	6H	6H	6H	6H
3	6H	6H	6H	2H /	V 621
DATA LINE73/					V 622
1	6H0	6H	*,6HNOWRIT,6H		*,6HNOWRIT,
2	6H	6H	S,6HUPPRES,6H	SESES/RE,6H	QUESTS,
3	6H	USER",6H	S GUID,6H	AT B,2H	HEG/
DATA LINE74/					V 626
1	6H	6H	*,6HWRT	6H	*,6HWRTF ,
2	6H	6H	I,6HNNING	6H	OF OUT,6H
3	6H	RM 360,6H/67	6H	2H /	V 629
DATA LINE75/					V 630
1	6H	6H	6H	6H	6H
2	6H	6H	6H	6H	6H
3	6H	6H	6H	2H /	V 633
END					V 634
					V 635-

References:

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